DOCUMENT RESUME

ED 399 852 HE 029 484

TITLE	Shared Responsibility: Strategies To Enhance Quality and Opportunity in California Higher Education, Report 96-3 [and] A Supplement to Shared Responsibility: A Resource Guide, Report 96-4.
INSTITUTION	California Higher Education Policy Center, San Jose.
PUB DATE	96
NOTE	207p.
AVAILABLE FROM	California Higher Education Policy Center, 160 West Santa Clara Street, Suite 704, San Jose, CA 95113 (free).
PUB TYPE	Viewpoints (Opinion/Position Papers, Essays, etc.) (120)
EDRS PRICE	MF01/PC09 Plus Postage.
DESCRIPTORS	Access to Education; Beginning Teachers; College Faculty; College Outcomes Assessment; Educational Quality; Educational Technology; Federal Aid; *Financial Policy; *Financial Problems; Financial Support; Higher Education; *Long Range Planning; Private Colleges; *Private Sector; Public Colleges; *Public Sector; Resource Allocation; *Retrenchment; State Aid; State Government; State Regulation; State Universities; Statewide Planning; Student Costs; Student Financial Aid; Teacher Evaluation
IDENTIFIERS	*California

ABSTRACT

This report describes the effects of the recession in the early 1990s on institutions of higher education in California including large budget cuts, student tuition increases, enrollment reduction of 200,000, growth in student loans, and lack of state policy. This report recommends that a new compact between the state, the colleges and universities, and the students and their families. California policymakers and citizens are urged to: (1) create a public compact of shared responsibility to maintain opportunity and quality in higher education; (2) expand the use of existing campuses and facilities; (3) utilize the capacity of California's independent colleges and universities through student financial aid programs, rather than building more public institutions; (4) increase student fees modestly to contribute to the support of additional undergraduate students; (5) eliminate mediocre quality and low priority programs and reallocate resources to those of highest quality and priority; (6) accelerate student learning before and during college; (7) establish an incentive fund to encourage cost-effective use of electronic technology for instruction; (8) base college admissions on assessment of achievement; (9) assess student learning; (10) assess the knowledge and teaching skills of new teachers; and (11) deregulate colleges and universities. A supplement explains specific strategies for each recommendation and describes shared responsibility approaches taken at other institutions. (Contains 18 references.) (JLS)

ED 399 852

HE 029 484

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY
California Higher Education Policy Center
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

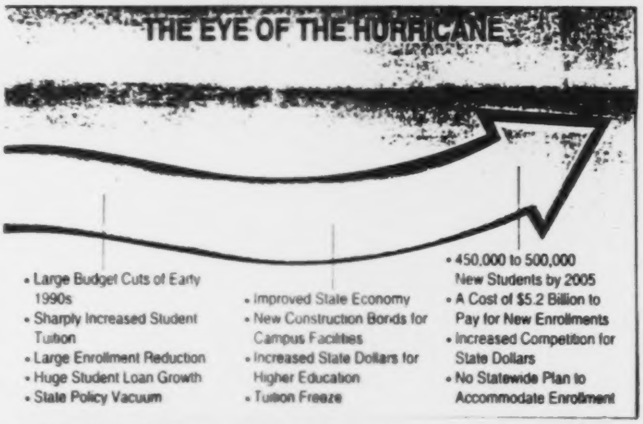
THE CALIFORNIA
HIGHER EDUCATION
POLICY CENTER

SHARED RESPONSIBILITY

STRATEGIES TO ENHANCE QUALITY AND OPPORTUNITY IN CALIFORNIA HIGHER EDUCATION

A Report to the Governor, the Legislature, the Higher Education Community, and the Citizens of California

California and its colleges and universities are in the eye of a hurricane. California higher education survived the initial storm of the recession in the early 1990s, albeit at the cost of reducing enrollments and drastically increasing the cost to students who were admitted. Student fees rose sharply, and enrollments declined by more than 200,000. Alone among the major industrial states, California suffered a decline in the percentage of high school graduates moving on to college. Nearly 2,000 senior faculty members in the University of California, including many highly productive scholars and teachers, were persuaded to take early retirement—a process that a highly placed university official has called "random decimation." The California State University laid off hundreds, if not thousands, of part-time faculty members, resulting in larger classes, heavier teaching loads and a widely perceived decline in academic quality. In the California Community Colleges, several districts came perilously close to financial ruin, as both state and local support dwindled. In all three public systems, buildings were poorly maintained, and libraries and laboratories deteriorated.


THE EYE OF THE HURRICANE
• Large Budget Cuts of Early 1990s
• Sharply Increased Student Tuition
• Large Enrollment Reduction
• Huge Student Loan Growth
• State Policy Vacuum
• Improved State Economy
• New Construction Bonds for Campus Facilities
• Increased State Dollars for Higher Education
• Tuition Freeze
• 450,000 to 500,000 New Students by 2005
• A Cost of $5.2 Billion to Pay for New Enrollments
• Increased Competition for State Dollars
• No Statewide Plan to Accommodate Enrollment

The first part of the hurricane seems to have passed. There has been some recovery in the past two years, as student fees have been frozen and state operating support has increased, though only slightly above the inflation rate. Enrollments have begun to creep upward again, but much of the damage done during the first years of the decade is still unrepaired. Despite an improved state economy and better budget prospects, this is not the time for business as usual—this is the illusory calm before the next storm. The next ten years will see almost a half-million *more* applicants knocking on college doors than are now enrolled. At the same time, state fiscal resources will be severely constrained, even if economic growth continues. Neither the state nor its higher education institutions have policies or plans to meet this challenge, and few in leadership positions seem willing to acknowledge the difficult times ahead. Yet there is real danger that the quality of this system will deteriorate or that access will narrow. Now is the time to act if California's historic commitment to college opportunity—which must include both access and quality—is to be preserved.

This report—which suggests actions and policies that will take California into the 21st century with a renewed commitment to college opportunity—recommends that a new compact be forged between the state, the colleges and universities, and students and their families. This new compact for shared

(continued)

INSIDE THIS REPORT

3 The Problem Facing California
6 The Concept of Shared Responsibility
8 Specific Strategies

BEST COPY AVAILABLE

Strategies for Shared Responsibility

STRATEGY ONE

Create a public compact of shared responsibility to maintain opportunity and quality in higher education.

STRATEGY TWO

Expand the use of existing campuses and facilities; do not build new campuses.

STRATEGY THREE

Utilize the capacity of California's independent colleges and universities through student financial aid programs.

STRATEGY FOUR

Increase student fees modestly to contribute to the support of additional undergraduate students.

STRATEGY FIVE

Eliminate mediocre quality and low priority programs, and reallocate resources to those of highest quality and priority.

STRATEGY SIX

Accelerate student learning before and during college.

STRATEGY SEVEN

Establish an incentive fund to encourage cost-effective use of electronic technology for instruction.

STRATEGY EIGHT

Base college admissions on assessment of achievement.

STRATEGY NINE

Assess student learning.

STRATEGY TEN

Assess the knowledge and teaching skills of new teachers.

STRATEGY ELEVEN

Deregulate colleges and universities.

(from preceding page)

responsibilities and benefits asks the state and the public to stabilize budgetary support, target additional funding to undergraduate enrollment growth, resist construction of new campuses, and hold the institutions accountable for enrolling additional undergraduate students. The compact asks colleges and universities to enroll all qualified students and reallocate resources to maintain—even enhance—quality with fewer new dollars for each additional student. It asks students and their families to bear their share through limited fee increases, and it asks students to work harder before and during college.

This compact of shared responsibility is needed now because California is in danger of revisiting a greater crisis than that of the early 1990s. The impending crisis results from the convergence of three factors:

- 488,000 *more* Californians than are now enrolled will be seeking a college education ten years from now;
- assuming business-as-usual practices, an *additional* expenditure of $5.2 billion for programs and buildings over the next ten years will be required to accommodate this increased enrollment demand; and
- state revenues will be insufficient to support higher education at business-as-usual levels.

Standing alone, each of these findings would be cause for concern. In combination, they present an unprecedented challenge to California, one that approaches crisis proportions because of a fourth factor:

- the absence of overarching state policy on higher education to provide goals, direction and public accountability.

In response to this predicament, this report addresses two urgent questions.

First, *should* California revitalize its historic tradition of finding a place on campus for all qualified applicants? Although there has been quiet erosion of this tradition, this report is premised on the belief that the ultimate answer will be affirmative. Who believes that Californians would deliberately deny to the next generation the benefits of quality education beyond high school that they and their parents enjoyed—individual benefits that have made the state the envy of the nation? All Californians are at risk if access is denied or quality declines. In the emerging era of rapidly changing work requirements and technology, of dramatic demographic shifts, and of a new and intensely competitive world economy, the state cannot afford to deny any Californian the chance to make the most of his or her life.

Second, *can* California manage its uniquely large and complex higher education system so that students, their families, and the public can afford both access and quality in the next century? This report asserts that it can, although only with extraordinary effort. The availability of a broadly accessible array of education and training opportunities beyond high school can no longer be taken for granted by Californians. In that spirit, this report offers a comprehensive policy framework for higher education's future.

Although the heart of this report is found in its recommendations for shared responsibility by the state, the public, higher education institutions, and students, the specific strategies that define the shared responsibility approach are

California Higher Education Facts

State Population:
35.1 million

State General Fund Budget (1995-96)
$44.2 billion

State Funds to Higher Education for Operating Expenses:*
$6.5 billion

Higher Education's Share of State General Fund Budget
13%

Total Number of Students in CA higher Education
2 million

	# of Institutions	# of Students	# of Employees	Budget from State Gen. Fund
Univ. of California	9	163,704	131,660	$1.9 billion
California State Univ.	22	324,950	35,926	$1.6 billion
Community Colleges	106	1,344,000	72,000	$2.7 billion*
Private Coll. & Univ.†	72	182,369	40,000	**

* includes state and local taxes   † Accredited only   ** Through student aid only

BEST COPY AVAILABLE

options, not prescriptions, for California. While many of these options have been tested by quantitative analyses and by experience in California and elsewhere,[1] others have not.

> "Access to college is not an abstract, faraway, dreamy issue for most Americans. It is the crucial point around which they orient their lives as they raise their children."
>
> —*Nicholas Lehman* in The Washington Monthly

None of the strategies is offered as a "silver bullet" that can resolve the thorny issues of quality and access; nor should every strategy be applied in the same way to every campus or system of higher education. At the same time, the strategies presented in this report are feasible, *interdependent* elements of policy options. It is in their *combination* that the proposed policy of shared responsibility achieves the three conditions that any such plan must meet:

First, the state and its colleges and universities must continue to maintain and enhance the quality of instruction, research, and public service.

Second, the state and its colleges and universities must accommodate all qualified undergraduates, regardless of their financial resources.

Third, while quality is improved and accessibility is maintained, the average cost of education per student must be reduced, and more extensive use must be made of public and private facilities.

The state successfully met similar challenges when faced with veterans returning from World War II, and with their children, the baby boomers. During the 1960s, California's four-year colleges and universities accommodated enrollment growth without a commensurate increase in financial support, and those days are often recalled as a "golden age" in higher education. But today's conditions are far less favorable than they were in earlier years, and tomorrow's are uncertain at best. The demands of other public services are far greater than in the past. The state's population is larger and will become more heterogeneous. And its economic growth is more problematic.

Present conditions, however, are not entirely adverse. Over the past three decades California has attracted talented and creative faculty and administrators to its colleges and universities. Their intellectual power and inventive capacity are the most important resources for reshaping higher education to meet future demands; faculty members are the ultimate guardians of academic quality. California's public and private colleges and universities—the result of investments made over more than one hundred years—constitute another asset. If appropriately utilized and maintained, they can meet many of state's future needs. The potentials of modern electronic technology, of new insights into the organization and delivery of learning opportunities, and of strengthened ties to public schools hold promise of greater accessibility, quality and productivity.

Can the state meet the enrollment and fiscal challenges of the next ten years? The Center believes that it can. This report clarifies what is at stake for California and proposes, within a framework of shared responsibility, specific strategies to revitalize California's commitment to college opportunity. It also seeks to shift the burden of proof to the doomsayers who predict the inevitable decline of educational opportunity and quality in higher education. California can meet the challenges it faces—if the leadership and collective will of the public, the colleges, and the state can be marshaled. As this report reveals, the capacity exists in California to provide the next generation of Californians with access to high quality education after high school. The core issues that remain, however, concern public priorities and values—and the willingness of Californians to accept and share *responsibilities* as well as *benefits*.

I. The Problem: Growing Student Numbers, High Costs, Problematic Revenues, and Policy Drift

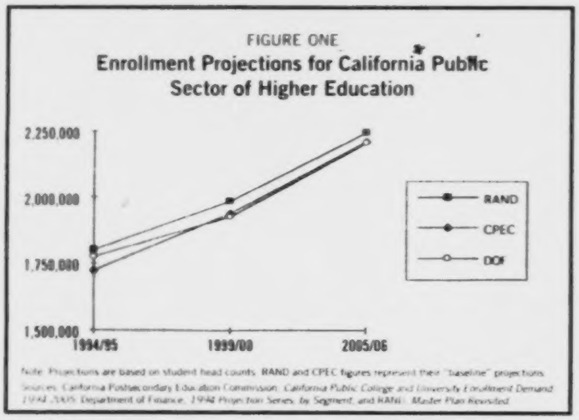
A very few years from now, a new surge of enrollments will reach California's colleges and universities, a surge that will not plateau until the second decade of the next century. These potential college students—some 488,000 more by 2005—are not a problem; they are an opportunity. What *is* a problem is that California may not be able to take advantage of the opportunity because the high costs of education will collide with increasing pressures on the revenues available to pay for them. This problem is compounded by policy drift—the failure to recognize that an essentially fiscal challenge has critical educational dimensions involving both access and quality. Addressing it is vital to the state's future. Failure to resolve this policy issue will lead to either of two equally unsatisfactory consequences: If access is maintained, coming generations of students will be shoehorned into crowded classroom and laboratories to contain costs; as a result, the quality of their education will suffer. Alternatively, if quality—as defined by high cost—is maintained, eligible applicants will be denied admission, and as a result, access will suffer. Resolving the public policy issue requires recognizing that California's commitment to college opportunity emphasizes both access *and* quality.

The state cannot afford to ignore the public policy issues raised by the coming enrollment demand. California's colleges and universities are not ivory towers isolated from the state's economic and civic life. It is not just that the University of California is a magnet for the nation's most talented individuals. The California State University prepares thousands of managers and high-level specialists who play a vital role in the state's economy, to say nothing of training over 12,000 public school teachers annually. California's Community Colleges are the broad foundation for the entire higher education system, and they are integral to the economy and culture of the regions they serve. California's

(continued)

FIGURE ONE

Enrollment Projections for California Public Sector of Higher Education

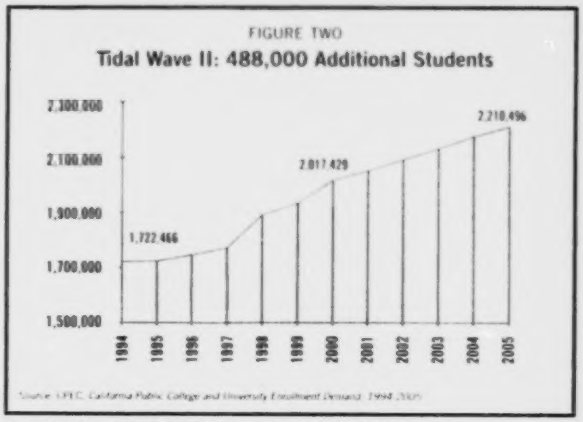


Note: Projections are based on student head counts. RAND and CPEC figures represent their "baseline" projections.
Sources: California Postsecondary Education Commission, *California Public College and University Enrollment Demand 1994-2005*; Department of Finance, *1994 Projection Series, by Segment*; and RAND, *Master Plan Revisited*.

Figure One reveals the substantial agreement concerning future enrollment among the major projections—CPEC, the Department of Finance, and RAND—that assume continued access to colleges and universities for all qualified high school graduates.

FIGURE TWO

Tidal Wave II: 488,000 Additional Students



Source: CPEC, *California Public College and University Enrollment Demand, 1994-2005*

Figure Two shows estimated enrollment growth during the next decade.

(from preceding page)

independent colleges and universities offer a broad range of undergraduate opportunities and award more than half of California's advanced degrees. The problems of the next decade will not just happen within the cozy confines of campus boundaries. Unless addressed now, they will inflict irreparable damage to all Californians and to the state itself.

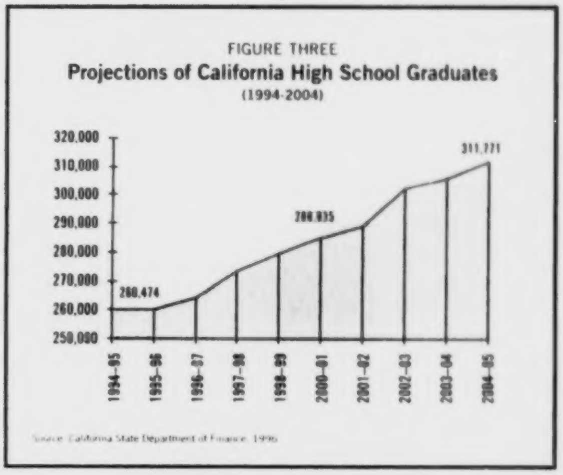
Tidal Wave II: 488,000 More Potential Students in 2005

Predicting student enrollments is a hazardous task. Predictions require assumptions about the future, some of which are necessarily subjective and often unstated. Nevertheless, as Figure One shows, demographers in California are in substantial agreement about enrollment increases over the next decade. Figure Two represents the projection that most nearly meets the Center's explicit assumption of continuing commitment to broad access in California.[2]

FIGURE THREE

Projections of California High School Graduates

(1994-2004)



Source: California State Department of Finance, 1996

Three critical assumptions undergird these enrollment projections:

- These projections are of eligible applicants, and, for the University of California and California State University, of high school and community college graduates who have *earned* the privilege of further undergraduate education.
- In California, projections of *undergraduate* enrollments are based largely on demographic factors, public school enrollments, college acceptance rates and public policy—as opposed to fiscal and political considerations. Although the commitment eroded during the recent recession, California's public policy—dating back to the 1960 Master Plan for Higher Education—still requires acceptance of all qualified applicants for undergraduate admission.
- These projections assume, as some do not, that historically under-represented ethnic groups will gradually increase their college attendance, that current enrollment levels are artificially depressed by high tuition and restricted enrollments, and that future policies will make up for the impact of artificially depressed enrollment levels.

These projections are not abstractions; the Californians who will seek college admission are now actually in school, and Figure Three shows the sharp increases in high school graduates expected during the next decade. As the enrollment projections show, about 488,000 new students must be accommodated on campus under historical policies—or a new policy of denying them opportunity must be created and justified. No one has come forward with such a new policy, although policy drift and inattention could achieve similar and unhappy results.

The next few years—the calm at the eye of the storm—are critical. Although enrollment pressures will have their major impact in the first decade of the next century, these pressures will intensify in the late 1990s. From 1999 to 2000, for example, head-count enrollment in the community colleges is expected to increase by some 72,000 students. In short, the state does not have time to waste. The next five years must be used to plan and phase in essential changes in educational practices and priorities. The need for action is urgent.

The Additional Cost of Tidal Wave II

The expenditures required over the next ten years to accommodate the 488,000 new students would be about $5.2 billion in new programs

BEST COPY AVAILABLE

and buildings under the "business-as-usual approach." This estimated cost is only for the *additional* state costs of educating the *additional* undergraduates. Although it does provide for repair, maintenance, and renovation of buildings, it does not include the operational costs of continuing current enrollment levels, which is currently at $6.5 billion for 1995-96.[3] The additional dollars, based on estimated current state costs of educating undergraduate students, will be required if existing educational practices continue and the proportion of these new students enrolled in all three public higher education segments roughly parallels existing student distributions.

Constrained and Finite State Resources

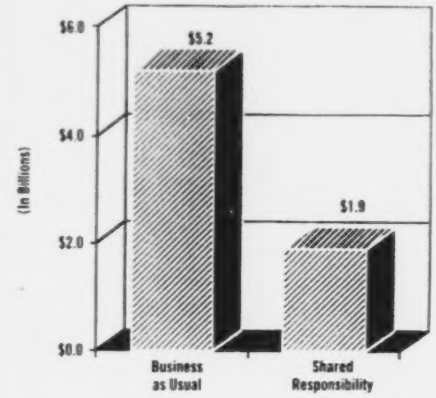
Belief that $5.2 billion for programs and buildings will be available over the next ten years if current fiscal and educational practices continue requires optimistic—indeed, unrealistic—assumptions about state revenue growth or higher education's share of these revenues or both.[4] At the national level, Robert H. Atwell, President of the American Council on Education warns that higher education should not expect to increase its current share of state or federal funding until sometime beyond the year 2010.[5] California is not an exception to this view. RAND recently concluded that if current trends continue until 2005, over 300,000 potential students will be denied higher education because state support will decline.[6]

California is unique, however, in having more to lose than other states. Its commitment to broad college opportunity has benefited generations of Californians, and it has drawn thousands of talented individuals from other states and nations. California's higher education system has been the foundation of the state's economy—a national, as well as a state, asset. But the reality is that California is at risk because it will not be able to continue supporting its colleges and universities at historical levels.

California is recovering from the recession of the early 1990s, and support for higher education has increased over two good budget years. These years, however, are poor predictors of prospects for continuing support at business-as-usual levels. Rather, they are the deceptive calm at the eye of the hurricane. The students who will comprise Tidal Wave II are even now working their way through the public schools. At the same time, the legitimate, budgetary needs of other social services—the public schools, corrections, and health and welfare—will continue to grow. According to one doomsday prediction, they will grow to the extent that, "There will be no money left for higher education—or any other governmental function."[7] One need not accept this prediction, however, to realize that it is highly improbable that the state will be able to nearly double its expenditures for higher education—the cost of continuing to operate on traditional, business-as-usual premises over the next ten years.

Comparison of State Costs For Accommodating Additional Enrollments

Estimates of Operating and Capital Costs (1996-97 to 2005-06)



Source: William Pickens, "Financing Tidal Wave II" (a Supplement to Shared Responsibility [illegible]) California Higher Education Policy Center, 1996)

The Policy Vacuum in California Higher Education

The predictions of enrollment demand over ten years—of its costs and of the capacity of the state to pay these costs—are ventures into an uncertain future. But no matter how subject to their practitioners' varying assumptions and values, demography and economics are sciences. Public policy analysis, however, is not a science. Whether particular policies—or their lack—serve the public interest is always a matter of opinion.

The very success of higher education in California contributes to the crisis, for it has created expectations for a future as rosy as the past, a future that includes: easy governmental acceptance of academic and professional interests as surrogates of the public interest; courses scheduled for the convenience of faculty and students, rather than for cost-effective use of facilities and of faculty and student time; and generous state support with little in the way of substantive accountability for educational results asked in return from institutions, faculty, or students. None of these was "bad" in the context of California's past economic growth. But as expectations of a business-as-usual future, they create habits that are hard to alter and that inhibit necessary change.

In 1995, the Governor proposed, and the Legislature confirmed, a four-year plan to stabilize higher education budgets, and they are to be commended for it. But the plan is a short-term solution to repair the immediate damage caused by the recession. It does not address the long-term implications of business-as-usual costs, of dramatically increased enrollment demand, and of increasing constraints on state funds. The earlier response of state and higher education leaders to the recession was fragmented, and, insofar as the impending long-term crisis is concerned, this fragmentation continues. Long-range plans and policies are still lacking. There are no indications that decisions will be other than *ad hoc* and unrelated to statewide policy in the future.

A Summing up: Recommendations for Preserving College Opportunity

State policy leadership is needed to guide all three public segments of higher education in their preparations and planning for a future of more students and more constrained resources. Without such direction, the university, the state university, and the community colleges will

(continued)

BEST COPY AVAILABLE

(from preceding page)

pursue—probably should pursue—their separate interests. Such fragmented pursuit, however, has little likelihood of meeting public needs that do not match the interests of individual institutions.

What public policies should guide higher education? There are only three options:

- *Policy Vacuum.* The continuation of a policy vacuum will have long-term results comparable to, but with far greater destructive consequences than, those of the early 1990s, which include almost arbitrary denial of college opportunity, soaring student charges and institutional paralysis born of uncertainty. Lack of policy is "comprehensive" only in the breadth of its inadequacy.
- *Policy Retreat.* As yet, few, if any, Californians openly advocate a deliberate retreat from the historic policies of opportunity established in the 1960 Master Plan for Higher Education. Such a comprehensive policy would mean explicitly denying college opportunity to those otherwise eligible, and reversing over three decades of inclusive policies. It would also require an equitable, rational basis for restricting admissions that the public would find difficult to accept.
- *Policy Renewal.* This option would require state reaffirmation of its historic commitment to opportunity for all Californians.

The third option—which involves renewal of long-term, comprehensive policies that are supportive of historic public values—is the choice that the Center unhesitatingly recommends.

Recommendation I. The Governor and Legislature should assure to eligible and motivated students access to colleges and universities of high quality at a price they can afford.

However necessary the effort and laudable the goal, mere statement of public policy will be empty unless accompanied by concrete actions to implement it. Selecting appropriate actions will be not be easy. The actions must be economically feasible, they must be consistent with—and preferably enhance—educational quality, and they must be supported by the public. As an appropriate action that meets these conditions, the Center recommends a new social compact based on the concept of reciprocity, a compact for shared responsibility.

Recommendation II. The people of California, through their state officials, should form a new social compact with colleges, universities, and students, under which the benefits and burdens of maintaining college opportunity would be fairly shared among all parties.

Because everyone in California shares the benefits of maintaining educational quality and access to it, everyone should share the responsibility for them—and be accountable for fulfilling that share. Shared responsibility is essential. The state must continue to invest in higher education, but it *alone* cannot foot the bill to meet this responsibility. Short of dramatic tax increases or a savage reduction in expenditures for other social services (each most unlikely in the Center's view), higher education will have to make do with a lower rate of increased support for each additional student than in the past. Nor is it reasonable to expect students and families *alone* to bear the burden. Beyond a threshold that may already have been reached, steeply raising tuition is not only politically problematic but counterproductive in its impact on access. Nor can colleges and universities *alone* resolve the problem. Institutions can only go so far in cutting costs before institutional quality begins to feel the razor's edge. An explicit commitment to *shared responsibility*, however, can maintain quality and preserve the benefits of higher education for all Californians.

II. Shared Responsibility: A Policy Framework for the Future

If you do not know or do not care where you are going, any road will get you there. Californians do know and care; they want quality and opportunity maintained.[8] Nonetheless, old road maps no longer serve. A new map is needed, one that can be relied on by the Governor and the legislators, by college and university leaders, by students and their parents, and by all Californians.

The road map to higher education's future—not the destination—is out of date. The recommended new social compact, in exploring a new route, is designed to breathe new life into California's traditional values of access and quality. It is intended to ensure that the historic commitment to college opportunity continues to guide California well into the next century.

Fair Shares: Opening the Discussion

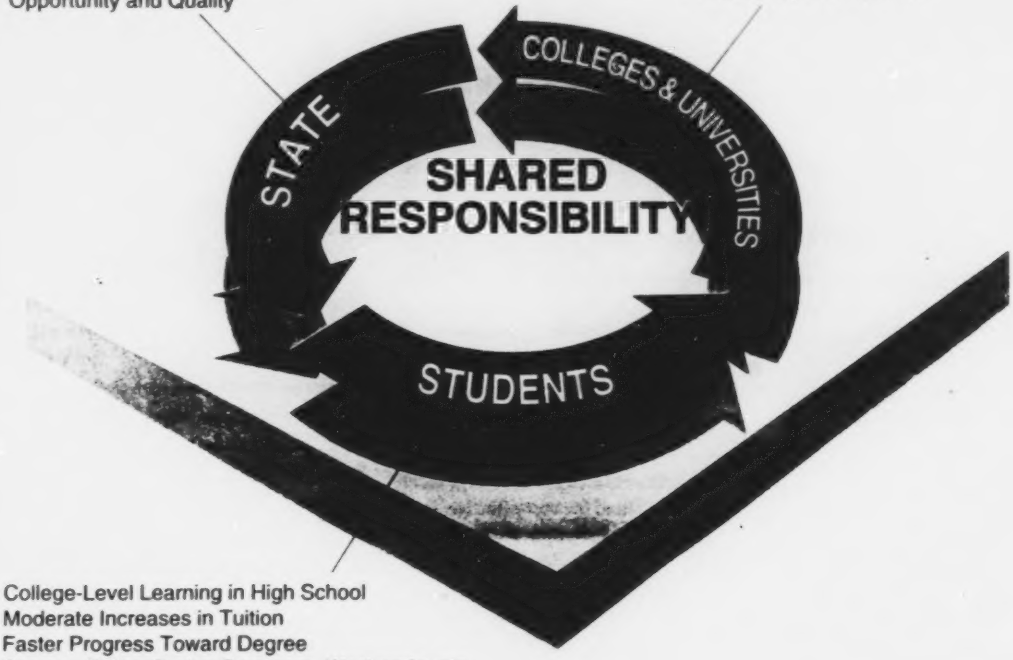
Shared responsibility is a long-term, comprehensive, state policy for maintaining higher education's critical role in the civic and economic life of California. It is a plan for assuring that the next generation of students will have access to high quality colleges and universities at a cost they can afford. Its goals do not differ from those of the 1960 Master Plan. Shared responsibility, however, will impose burdens on all who benefit from that system—and all Californians benefit.

The burden of responsibility for higher education's future has always been shared to some extent; indeed, the Master Plan assigned different functions to the university, the state university, the community colleges, and the independent colleges and universities. This remains a prime example of shared responsibility. Consensus is unlikely, however, on how much responsibility each party should bear in the future. But the discussion must begin somewhere, or it will never take place. The Center suggests a sharing of responsibility that is fair, one that, to the extent possible, relies on incentives, not mandates. It is one that holds all parties—the state, the colleges and universities, and the students—accountable. And it has reciprocal benefits for the burdens imposed.

The State's Share. The state should protect its present capital investment in existing facilities and campuses and stabilize the level of operational funding for higher education. The state—the general public acting through its state leaders—should maintain the continuing capacity to assure college opportunity, including additional student financial aid. Additional funding for colleges and universities should be contingent upon enrolling eligible students, and the state should hold institutions accountable, annually assuring that its priorities are implemented. As part of the compact, colleges

- Maintain Current Funding for Higher Education
- Share Funding of Additional Students
- Fund Student Financial Aid
- Use Spaces in Private Institutions
- Create Technology Innovation Program
- Hold Institutions Accountable for Opportunity and Quality

- Enroll All Qualified Students
- Year-Round, Extended Week and Weekend Operation
- Use Technology Effectively
- Assess Student Learning for Admissions /Awarding Degrees
- Better Prepare Teachers



- College-Level Learning in High School
- Moderate Increases in Tuition
- Faster Progress Toward Degree
- Courses Taken During Summers, Weekends, etc.

and universities would be freed of much of unnecessarily burdensome regulatory and financial controls in return for greater accountability for increasing access and educational quality. All Californians would benefit from assurances of continued quality and educational opportunity.

The College and University Share. The range of options for institutions of higher education to meet their share of responsibility is extensive. Although the Center recommends specific actions in the following section, not all are applicable to all institutions. Moreover, the colleges and universities should manage their own implementation of shared responsibility. Whatever their actions, the institutional response should be expected to reflect the needs and circumstances of the state over the next decade, the imperatives of cost-effectiveness and greater productivity, and the adoption of innovative practices to protect access and quality.[9] They must find space for every qualified applicant, and be accountable to the state for doing so. With assurance of a stable budget, redistribution of resources to programs of the highest quality should be less threatening. California's colleges and universities should maintain competitive faculty salaries. Over time, the institutions will benefit from budgetary stability, greater flexibility and lower operating costs.

The Student Share. Expectations of students should increase, as should the opportunity and support for them to meet higher expectations. Student charges will increase with personal income, and with an additional, but annually limited, charge to contribute to the cost of increased enrollments. Students must expect to work harder to qualify for college, and then to move through the undergraduate curriculum more purposefully than in the past. Many students will face less convenient course scheduling. Students, however, would be the most direct beneficiaries of shared responsibility—of continued access to high quality, affordable higher education.

In the past, responsibility for higher education was shared, but the sharing was largely implicit. Under the formal, statutory structure of the 1960 Master Plan, the public colleges and universities were only loosely coordinated, and, until the 1990s, enrollment growth was regularly funded by the state under negotiated and relatively stable formulas.[10] With few exceptions, state and higher education leaders have focused primarily on revenues.[11] What would change under the new social compact would be the explicit consideration of the responsibilities the parties bear. The state, the colleges and

(continued)

(from preceding page)

universities, and the students and their families must each do more than they have in the past. The time has come to shift from emphasis on more revenues to what these revenues buy—to how money is spent—and to ask how opportunity and quality can be preserved with fewer resources behind each student.

Doing more in the future will be difficult for everyone. Students will probably respond to change, for they are not encumbered with higher education's business-as-usual habits and expectations. But institutional administrators and faculty do carry this burden, and implementing the policies proposed here will require something in the nature of a cultural change to separate what is central to educational quality from what is mainly convenient. Redistribution of programs and people will be difficult. California's elected leaders also face a challenge, for they alone can offer the policy direction and set the terms of shared responsibility for at least the next decade. The Governor and the Legislature must take the initiative. Without effective state leadership and policy guidance, California's public colleges and universities have little chance of keeping their envied place among the finest institutions in the nation, nor does California have much chance of retaining its place as America's premiere state.

Shared responsibility is a feasible, comprehensive plan, and the strategies suggested in the next section are policies and actions that, in the aggregate, would implement it. Without an explicit policy framework, one supported and ordered by realistic measures for implementation, California and its colleges and universities will wander in a wilderness of fragmented, *ad hoc*, short-term reactions. With such a framework, however, California can keep its promise of educational opportunity and high quality for the next generation.

III. Strategies for Shared Responsibility

The new social compact—shared responsibility—provides a means to reach the goal of college opportunity for all qualified and motivated students. It is a comprehensive policy for the future that recognizes the complexity of California and its higher education system. The strategies—taken collectively—show that shared responsibility can be a feasible resolution of extremely serious, long-term problems. Others may accept "shared responsibility" as a feasible approach, but may rely on other specific strategies. If so, such strategies—like those in this report—must:

- *Accommodate all eligible undergraduates, regardless of their financial resources.*
- *Maintain and enhance the quality of instruction, research, and public service.*
- *Reduce, in the aggregate, the average cost of education per student.*

The era of continuing pressure on state financial resources will require something more of all who benefit from higher education; the "something more" is described under each strategy. Also, the *Supplement to Shared Responsibility*, which is available from the Center, provides data, examples from across the United States and summaries of publications that will provide a context for the strategies described below.

STRATEGY ONE: CREATE A PUBLIC COMPACT OF SHARED RESPONSIBILITY TO MAINTAIN OPPORTUNITY AND QUALITY IN HIGHER EDUCATION.

- **The Governor and Legislature should preserve the state's investment in higher education and target additional support to campuses that accept additional undergraduate students.**
- **The state should hold colleges and universities accountable for the enrollment of eligible undergraduate students, and for cost-effective operations, including the establishment of priorities and the reallocation of resources.**
- **The state should expect students to be better prepared for college, and to share in the cost of increased undergraduate enrollment.**

Stabilization of Future State Support. Most of the state financial resources available to public higher education, particularly for undergraduate education, are those that it already has in the over six billion dollar operating budget that represents the state's current, annual investment (in the 1995-96 fiscal year, $6.5 billion in state general funds and property taxes). California must maintain the purchasing power of this level of basic support as a precondition for accommodating current and projected enrollments. *If, for instance, the state should* disinvest in higher education, as it did in the early 1990s, it is unlikely that any plan for accommodating the enrollment increases projected for the next decade could succeed. If the RAND prediction is correct—if entitlements, federal and constitutional mandates and the cost of corrections force the state to reduce support of higher education below current levels—the shared responsibility approach will fail. There are, in the Center's estimation, no circumstances under which California can ***reduce*** its investment in higher education and expect enrollment increases that will preserve educational opportunity.

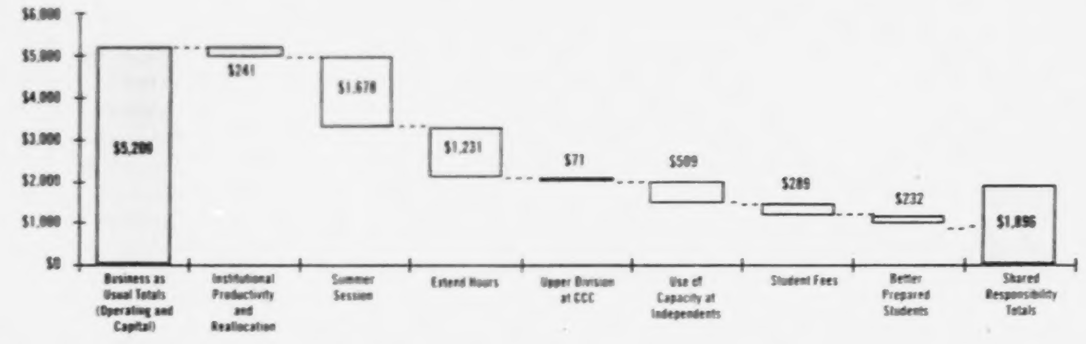
> "Learning productivity addresses access in what I call the California mode, where only with some productivity somewhere, somehow, will this state and Florida, Texas, and other fast-growing states . . . maintain the historic access that they have had."
>
> *—D. Bruce Johnstone, Former Chancellor, State Univ. of New York*

Support for Undergraduates. Beyond the current level of support for current enrollment levels, the state should also provide additional funds for each additional undergraduate student. However, this support should be based on the actual cost of educating each additional *undergraduate* student, which is significantly less expensive than including *graduate* students in the calculation. Further, the state share should be reduced due to the expectation of increased productivity at colleges and

From Business as Usual to Shared Responsibility: Options for Funding Tidal Wave II

Steps to Reducing and Sharing the Costs of Programs and Buildings

(Dollars in Millions)



Source: William Pickens, "Financing Tidal Wave II," in *Supplement to Shared Responsibility* (San Jose: California Higher Education Policy Center, 1996).

Through a variety of interdependent strategies, California can provide educational opportunity for Tidal Wave II enrollments at a much lower cost than the business as usual estimates suggest. This figure shows that California can more than solve the problem using a combination of strategies that reduce both capital and operating costs to the state. All estimates of savings have factored in additional maintenance and operations costs associated with the strategies.

universities and due to an increase in the student contribution (through fees and better preparation, for instance). As a consequence, the rate of *growth* of state funding for *additional* students will be less than in the past.

Institutional Reallocation and Productivity. Under the concept of "shared responsibility," the public colleges and universities should be expected to focus their resources on the highest public priorities, to become more educationally and cost effective, to reallocate their base budgets as necessary, and to achieve academic and administrative efficiencies.

Student Preparation and Fees. Assurance of college admission for the next generation of students will require the state both to stabilize funding for the institutions and to support additional undergraduate enrollments. In return for such assurance, students should expect to bear a share of the cost of their education (see Strategy Four below) and to be better prepared for college (see Strategy Six below).

STRATEGY TWO: EXPAND THE USE OF EXISTING CAMPUSES AND FACILITIES; DO NOT BUILD NEW CAMPUSES.

- **New public campuses should not be built for at least ten years.**
- **Maintenance and renovation of public campus facilities should be the highest priority for state capital outlay support.**
- **The state should require greater use of classrooms each week, and instruction should be scheduled on a year-round basis.**
- **The state should encourage upper division courses leading to a baccalaureate degree to be offered at selected community colleges through cooperation with public and private four-year campuses.**
- **The state should invest substantially in strengthening the transfer capacity of community colleges.**

> "As a broad generalization... we ought to be able to find within higher education at least a third of the necessary additional resources by better utilization over the next several years."
>
> —*Clark Kerr, Former President, University of California*

Do Not Build New Campuses; Give Priority to Maintenance and Renovation. The California Postsecondary Education Commission estimates that the capital costs of accommodating enrollment demand over the next ten years will be $4 billion, or $400 million per year, exclusive of any other capital needs.[12] Based on the past practice of building new facilities for new students, this estimate is totally unrealistic for a future of scarce fiscal resources. In addition, existing campuses and buildings should be maintained and renovated.

Under these circumstances, it makes little sense to embark on an era of new campus building. Plans for new campuses should be deferred for at least a decade. If the maintenance and renovation needs of existing campuses are met, if those facilities are more efficiently utilized, and if more effective use is made of the state's independent colleges and universities, the projected enrollment increases can be accommodated by existing campuses.

Classroom Use and Year-Round Operations. Making better use of student time and facilities will require greater classroom and laboratory use on public campuses during early mornings, evenings, weekends, as well as year-round study.

(continued)

BEST COPY AVAILABLE

> "I have serious questions about the feasibility and appropriateness of building new campuses in the state at this time. I don't think we have exhausted the possibilities of using existing resources as well as we should."
>
> —*John Brooks Slaughter, President, Occidental College*

(from preceding page)

The public institutions and the California Postsecondary Education Commission currently estimate that most classrooms are occupied 35 to 45 hours per week.[13] The capacity to accommodate Tidal Wave II enrollments can be significantly increased through more effective use of facilities. By offering courses in evenings and on weekends for at least 50 hours per week, the capacity for instruction would be substantially increased. Accommodating students in this manner is not without costs, but these costs are much less than the cost of building entirely new facilities.

Moving to year-round operations would further maximize the use of existing facilities. Currently, most summer sessions offer a minimum array of courses. In addition, most four-year public campuses do not receive a state subsidy, and therefore are at full cost to the student. Many institutions should offer a full undergraduate program during the summer, including high demand courses and requirements. The state should support student enrollment during the summer term, a cost that is included in shared responsibility projections.

In order to achieve the efficient use of facilities that will make it possible to accommodate of all qualified students, classes would be offered at less convenient times than in the past. Public colleges and universities should consider experimenting with financial incentives (e.g., tuition discounts) to encourage students to enroll in courses offered at the most inconvenient times. In addition, some institutions may wish to require students to attend at least one summer session to complete their programs.

Upper Division Courses at Community Colleges. Upper division courses leading to the baccalaureate could be offered on many community college campuses at great convenience to students and at savings of capital outlay dollars for new facilities at four-year institutions. State policy should encourage community colleges and four-year colleges, particularly the California State University, to collaborate in offering upper division courses through the bachelor's degree on selected community college campuses through electronic technology, shared faculty, or more conventional means when such offerings would be cost effective and would improve access.

Strengthening the Transfer Capacity of Community Colleges. As in the past, most Californians seeking higher education will attend the community colleges to acquire vocational skills or to prepare for transfer to a baccalaureate institution. Projections indicate that some 385,000 additional students will seek entry to the community colleges over the next ten years. This will place an enormous fiscal burden on that segment, particularly the need to expand transfer programs while maintaining and expanding programs that develop vocational skills.

To assist the community colleges in meeting the needs of transfer students without diminishing the role of vocational training, the state should provide $10 million annually as a supplementary appropriation, or $100 million over the next decade. This appropriation should not be allocated uniformly among the colleges or on any *pro rata* basis. Rather, the distribution of funds should recognize the burden imposed by differential growth rates among the colleges, and should also reward colleges for increasing their number of transfer students.

STRATEGY THREE: UTILIZE THE CAPACITY OF CALIFORNIA'S INDEPENDENT COLLEGES AND UNIVERSITIES THROUGH STUDENT FINANCIAL AID PROGRAMS

The state should make use of the capacity of the independent colleges and universities by supporting the Cal Grant, the major state student financial aid program, at levels that will encourage approximately 20,000 additional students to attend private institutions. This will reduce pressure for construction of new public facilities. In addition, California should establish, as a pilot program, a new student aid grant that would be $1,000 greater than the maximum Cal Grant award. This new student grant should be based on academic performance and financial need, and would be an incentive for about 2,000 additional students to transfer to a private college or university after completing freshman and sophomore years at a public community college.

STRATEGY FOUR: INCREASE STUDENT FEES MODESTLY TO CONTRIBUTE TO THE SUPPORT OF ADDITIONAL UNDERGRADUATE STUDENTS.

- **Undergraduate student fee increases should be based on two factors (1) affordability, as measured by the rate of growth of personal income in California, and (2) the student share of the cost of additional undergraduate enrollments.**
- **The state should provide student financial aid equal to one-third of student fee increases; student fees should not be used**

> "Over the past 10 to 15 years, California's three public higher education systems have been in a state of constant maintenance deferral. . . . Based on our campus visits, we believe that the total deferred maintenance backlog is in the range of several hundreds of millions of dollars. . . . A long-run strategy to address maintenance failures at the state's higher education segments is essential to protect the state's investment in higher education buildings and infrastructure."
>
> —*1996/97 Legislative Analyst's Report*

to fund additional student financial aid.

Student Fee Increases. Student fees should be adjusted annually. Increases in student fees should not exceed 6 percent of the prior year's student fees for the university, 5 percent at the state university and 4 percent at the community colleges. The differential limits reflect current income profiles of students in the three systems. This policy is designed to assure a student contribution to the preservation of opportunity, and to prevent dramatic fee increases in difficult budget years—for example, increases of more than 100 percent at the university and state university in the early 1990s. It is also intended to break the pattern in which some fees remain flat for four or five years only to increase dramatically over the next few years. Over the past twenty years, this pattern has meant that some student cohorts have the real cost of their education reduced each year they are in college, while the next cohorts face steep increases every year. The unpredictability of fee increases, as well as their size, were largely responsible for the enrollment declines in the early 1990s. Finally, the use of personal income growth as one basis of adjustments is intended to link increases to a measure of affordability, rather than to the state's fiscal circumstances or to the gap between institutional budget requests and state appropriations.

Student Financial Aid. The state should be responsible for meeting additional need for student financial assistance. In the recent past, most of this responsibility has fallen on students—many of whom were borrowing to pay their fees—who have, in effect, paid a surcharge on their student fees to support financial aid for other students. One consequence of this approach was that student aid given by the campuses from these surcharges increased 70 percent, nearly twice the growth of aid funded by the state.[14]

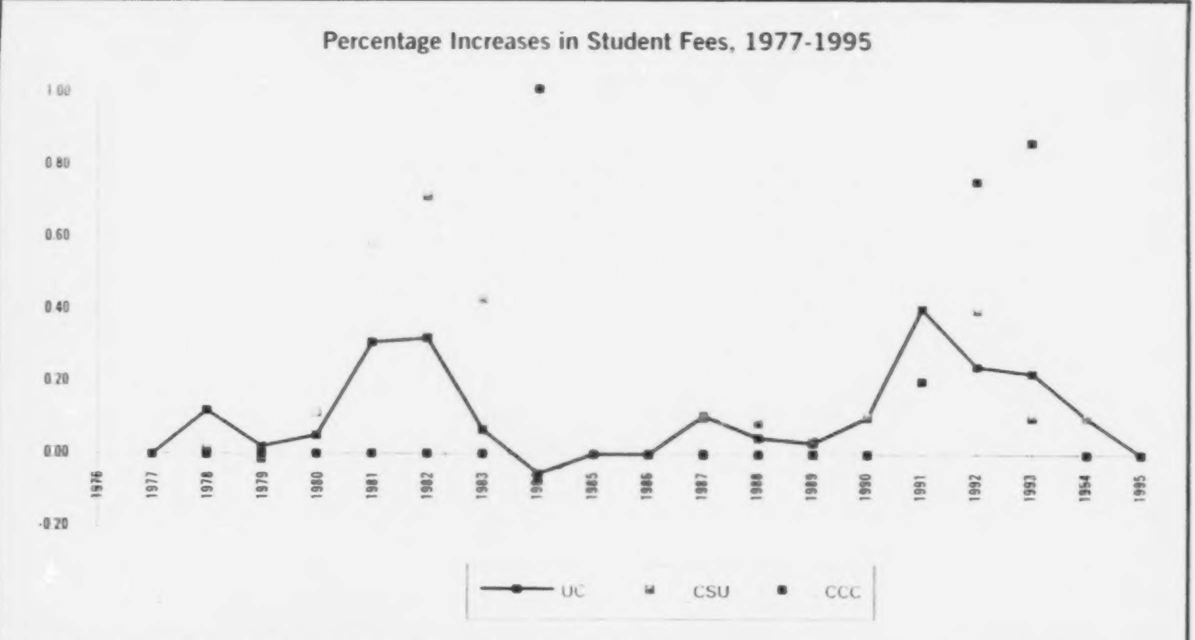
STRATEGY FIVE: ELIMINATE MEDIOCRE QUALITY AND LOW PRIORITY PROGRAMS, AND REALLOCATE RESOURCES TO THOSE OF HIGHEST QUALITY AND PRIORITY.

- **The University of California should offer a limited number of the highest quality graduate programs in every significant area of knowledge, but should not maintain a comprehensive array of graduate programs at each campus.**

Program Review, Reallocation and Retention of Savings. For the state and all public campuses, constrained financial circumstances require new capacities for assessing the quality and priority of programs and activities, for eliminating redundant programs that cannot be justified, and for reallocating financial resources to the highest priority areas. Throughout most of the past three decades, neither the statewide systems nor the individual campuses have developed these capacities because the emphasis was primarily on acquiring new resources. Higher education will not be able to meet future needs for accessibility or quality if it views its current array of programs and activities as "locked in." Instead, the resources to support the priorities of the present and future must be derived by reallocation. Savings achieved by the elimination or consolidation of programs of lower quality or priority in all public higher education systems should be retained and reallocated by them.

University of California Graduate Programs. The University of California should adopt a strategy of "selective excellence" in graduate education. It should seek to maintain a

(continued)



Source: [illegible] Financing the California Master Plan, Rep[illegible] (San Jose: The California Higher Education Policy Center, 1995).

This figure shows the increases in student fees at each institution on a year-to-year basis. Fees that stay the same from one year to the next have a 0.0% value. This figure shows the large unpredictability of student fee increases as compared to the steady levels recommended under *Shared Responsibility*.

BEST COPY AVAILABLE

> "What this university is going to have to face are difficult decisions about the role and mission of each campus and, campus by campus, which programs to strengthen, which to maintain, which to cut back and which to phase out. . . . If we can no longer cover all areas of knowledge, then each of our campuses will have to determine those areas in which it has comparative advantages in developing and maintaining true distinction."
>
> *—Harold Williams, former Regent of the University of California*

Doctoral Program Offerings at UC

Graduate Program	*# of UC Campuses*
Chemistry	9
Psychology	9
Computer & Information Services	8
Economics	8
History	8
Mathematics	8
Miscellaneous Biology	8
Music	8
Physics	8
Anthropology	7
Comparative Literature	7
Fine Arts	7
Germanic Languages	7
Multidisciplinary, Other	7
Philosophy	7
Political Science	7
Romance Languages	7
Sociology	7
Zoology	7
Biochemistry	6
Biology	6
Education, General	6
Foreign Languages & Lit.	6
Geography	6
Mechanical Engineering	6
Business Administration	5
Cell & Molecular Biology	5
Chemical Engineering	5
Electrical Engineering	5
English	5
Geology	5
Materials Engineering	5
Math Statistics	5
Other Social Sciences	5

Note: This table shows those programs that appear in more than half of UC's nine institutions.
Source: CPEC Integrated Postsecondary Education Data System (IPEDS) file, 1994.

(from preceding page)

limited number of the highest quality programs in every significant area of knowledge, including emerging areas. The university should not, however, maintain a comprehensive array of graduate programs at each campus. Every world-class program needs protection, not just from external critics, but from dilution by duplicative programs of lesser quality.[15]

STRATEGY SIX: ACCELERATE STUDENT LEARNING BEFORE AND DURING COLLEGE.

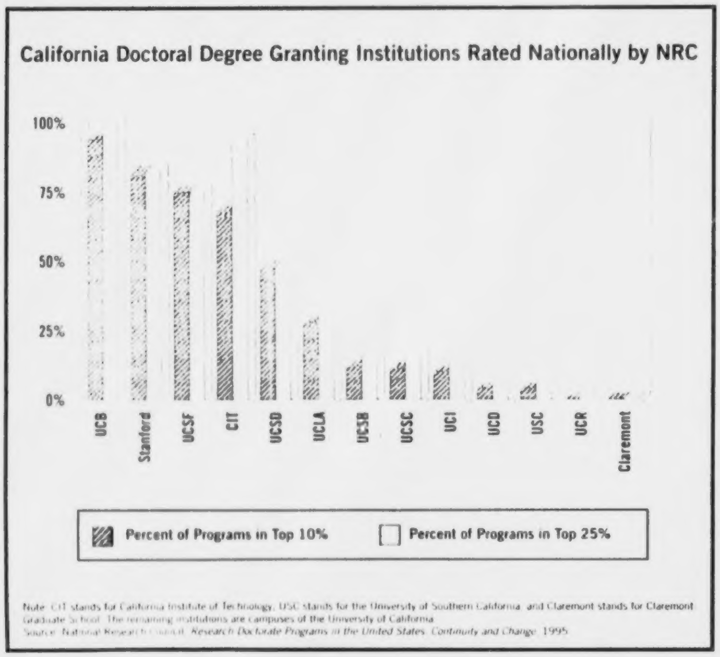
- **High school students should have the opportunity and be encouraged to acquire college credit by examination, and to take college level courses at high schools and community colleges.**
- **Colleges and universities should make required courses available to enable students to complete a baccalaureate degree in four years.**
- **Students who, without academic justification, take substantially more courses than required for graduation should pay an additional fee.**

Student Preparation Before and In College. If provided the opportunities, many students can begin taking college courses while in high school. In recent years the numbers of high school students successfully taking Advanced Placement examinations has significantly increased. When students take advantage of these opportunities, they accelerate their education, make better use of time, and reduce the cost of college. California high school students who intend to enter a four-year college or university should be encouraged to enroll concurrently in community college and high school, and to prepare for and take Advanced Placement courses. Colleges and universities could certify selected high school instructors to offer college-level courses for credit. And the potential of technology for delivering college courses to high school students who are ready for them should be aggressively explored. If these opportunities are widely available and students are encouraged to take advantage of them, we believe that by the year 2,000, 35 percent of first year freshmen in the state university and 45 percent of first-year freshmen at the university will have completed—in high school, in community college, by distance learning, or otherwise—one-half year of college work acceptable as credit for a bachelor's degree. By the year 2006, 60 percent of freshmen at CSU and 70 percent of freshmen at UC will have completed such work.

Availability of Required Courses. Public colleges and universities should guarantee full-time students that required courses will be available to permit students to graduate in four years. It may not be possible to offer classes at the most convenient times because of the need to make full use of facilities. Even if classes are available, public colleges and universities should

Graduate Program Review in Ohio

In the midst of the third major fiscal crisis (1991) facing Ohio in 20 years, a task force was created to look at structural solutions for meeting the needs of students seeking higher education. The primary responsibility of the task force was to review existing doctoral programs to determine which were "unnecessarily duplicative." The review focused on doctoral programs because of their higher cost compared to other programs, because of their rapidly increasing costs, and because the Regents wanted to emphasize affordable, high-quality undergraduate education. The review included program self-studies and used external experts who served as evaluators, by discipline, in reviewing each programs' quality and viability. Additionally, another task force was established to determine the program need for the state of Ohio. During the review, incentives were offered for universities to withdraw or consolidate programs. Grant funds were available to reinvest in other doctoral programs, shift resources to undergraduate education, or offset the costs of collaboration. While it is too early to determine the overall savings to the state since the review is not complete, officials in Ohio report progress in strengthening doctoral programs and targeting resources to high priority areas.


California Doctoral Degree Granting Institutions Rated Nationally by NRC

Note: CIT stands for California Institute of Technology, USC stands for the University of Southern California, and Claremont stands for Claremont Graduate School. The remaining institutions are campuses of the University of California.
Source: National Research Council, *Research Doctorate Programs in the United States: Continuity and Change*, 1995.

provide more opportunities than at present for students to acquire credits for graduation by examination. If necessary courses are not available and students must spend additional time or take additional classes, the cost of additional classes should be assumed by the institution without charge to the student or the state.

Charge for accumulation of excess credits. A student fee surcharge should be paid by students who take units in excess of 10 percent of those required for graduation without reasonable academic justification.

STRATEGY SEVEN: ESTABLISH AN INCENTIVE FUND TO ENCOURAGE COST-EFFECTIVE USE OF ELECTRONIC TECHNOLOGY FOR INSTRUCTION

California, the home of the Silicon Valley and the entertainment industry, should be the leader in the application of electronic technology to higher education to improve quality, enhance access and reduce costs. Technology is no panacea, however, and even if it reduces costs, it often requires substantial investments in equipment, software and training. Yet it has enormous potential for: individualizing the style and pace learning; making it a more available, convenient, and active process; challenging students with more complex and sophisticated problem-solving; stimulating collaborative teaching and learning; and, ultimately, reducing per student costs. Technology can be a major piece of the puzzle of how learning can be improved and become more cost effective over the long-run.

In order to reap the benefits of the appropriate application of technology, California and its colleges and universities must make investments in pilot projects to systematically experiment and evaluate the results and make what is learned broadly available. The State of California should establish a ten-year incentive program of $30 million annually to encourage and support innovative use of technology in instruction to enhance access, improve quality and reduce average costs. Grants should be made on a competitive and matching basis to individuals, academic units or institutions. The program should encourage cooperation across campuses and segments and between colleges and public schools and with the private business sector for delivery of collegiate instruction. Projects should be rigorously evaluated and the results disseminated throughout California higher education.

Early College Preparation at Syracuse University

Over 5,000 students from high schools in the northeast currently participate in "Project Advance," the largest program in the country where high school faculty deliver college courses in high schools. About 85,000 high school students have earned college credit through this program since 1973. Exemplary high school faculty are selected, through a competitive process, to teach college courses in a wide range of general education and applied college courses, including biology, calculus, chemistry, economics, computer engineering, etc. Training for the high school teachers is provided by Syracuse University faculty prior to their teaching assignment, as well as during the courses. Ongoing evaluation ensures that course content and outlines of Project Advance courses are comparable to Syracuse University courses. Evaluations of the project shows that students who participate in Project Advance reduce their time to degree in college and test out of more courses than students who have not participated in the project. Twenty-five percent of all students participating in Project Advance enter college with enough credit to graduate a semester early.

STRATEGY EIGHT: BASE COLLEGE ADMISSIONS ON ASSESSMENT OF ACHIEVEMENT.

Admission requirements are one of the most important signals that four-year colleges and universities send to the public schools and their students and families. The enormous influence of higher education on the public school curriculum and on high school courses taken by students is clear from the experience of the last decade. In the 1980s the state university adopted the university's college preparatory course requirements and both the university and the state university gave extra weight in admissions consideration for Advanced Placement (AP) courses. The number of students completing the college preparatory curricula rose from 26 percent in 1986 to 32 percent in 1994. Meanwhile, the number of seniors participating in AP exams has nearly doubled.

Despite these encouraging responses, however, many California students could and

(continued)

BEST COPY AVAILABLE

The Use of Technology at Rensselaer Polytechnic Institute

By using the latest computing tools, combined with cooperative activities, students at Rensselaer Polytechnic Institute (RPI) have been able to participate in "studio" classrooms in introductory Calculus, Chemistry and Physics. The studio model utilizes individual computer work stations to complete in-class assignments and labs. Students also receive brief lectures on key concepts that they apply in their work at the computer. Student satisfaction with the studio model is higher than with the traditional classroom lecture/laboratory combination. Also, students spend about 33 percent less time in the "studio" model compared to the traditional model of instruction. Program evaluations show that student teaming in the studio model is similar to that of the traditional classroom.

Competency-Based Admissions in Oregon

Under a new program called the Proficiency-Based Admission Standards System (PASS), Oregon's public colleges and universities are moving from the use of course-based requirements (such as the Carnegie units) for college admission to a new approach that specifies the knowledge and skills which students must master to be admitted into any of the state's seven colleges or universities. Proficiencies have been approved in math, science, social sciences, foreign languages, humanities and the fine arts. The state also requires that students demonstrate competency in writing, reading, communication, critical thinking and problem solving. Students will be tested to determine proficiency in content areas and teacher verification will attest to competencies in other skill areas. Demonstration of high levels of competency in Advanced Placement courses while in high school can also be used to satisfy some content area admissions requirements.

(from preceding page)

should be better prepared to benefit from college. The next step must go beyond identifying and prescribing course requirements to assessing the specific knowledge and skills needed to perform at the college level, and making these a major component of college admissions. As the California Business Roundtable has recommended, "the admission requirements for UC and CSU must be revamped to be based on performance assessments rather than on attendance and grades in prescribed classes."[16]

Explicit standards and assessments will send a much clearer signal from the university and state university to the high schools than do the current criteria that rely primarily on course taking patterns, grades, and general tests of academic preparedness, such as the Scholastic Assessment Test I (SAT). Moreover, some of the foundations for standards and assessments are already in place or being put in place. In the 1980s, faculty members from across California higher education collaborated to identify the knowledge and skills needed for college work in several disciplines. Also, the "Golden State" examinations, which test knowledge in seven academic areas, are currently taken on a voluntary basis by about 400,000 California high school students, and could be expanded and used to assess students for high school graduation and college admission. Two task forces under the auspices of the California Education Roundtable are charged with developing new standards for English and mathematics proficiency.

Standards and assessments, however carefully developed, are not likely to influence high school curricula or student performance unless they are a major part of university and state university admissions processes. While there is little doubt that both segments of higher education would like better prepared students, it is less clear that they are prepared to make changes in their admissions practices needed to stimulate these improvements.

STRATEGY NINE: ASSESS STUDENT LEARNING

Colleges and Universities must begin a transition toward making student learning, not the time spent on courses taken, the principle basis on which degrees and certificates are awarded. **Transition will require explicit** standards for graduates and methods of assessing the knowledge and skills that students should have when they complete programs. What is needed is not standardized approaches, but measures developed by each campus and program based on its mission and curriculum.

> **"Clear standards generally do not exist to tell students what they are expected to learn in order to launch a career or follow a lifelong progression to higher skills. Without these standards, educators, trainers, and program directors do not have adequate guidance to develop curriculum. Consequently, they cannot be held accountable for what is really important—how well students learn."**
>
> —*The California Business Roundtable, Mobilizing for Competitiveness*

Assessment of educational outcomes at the conclusion of degree and certificate programs would serve at least four purposes: First, assessment would inform faculty, departments, and campuses of factors that can improve program quality. Second, it would assure students, employers and the public of the knowledge and skills of graduates. Third, it would provide a comparison of differing approaches to the curriculum and to teaching methods, and would thereby encourage innovation and rigorous evaluation of new and old educational practices. Finally, and of major importance for shared responsibility, assessment would assure the public that educational quality was not diminished because of resource reallocation within the colleges and universities. For higher education, assessment of educational results is a critical step in shifting from the traditional emphasis on *inputs*—dollars, credit hours and library collections—to

> "We risk a division of our people along racial and class lines if jobs are sharply split between high skill, high wage and low skill, low wage employment. Both California's economy and its continued social health require that its citizens have full access to quality education to support industry's shift to high skill jobs."
>
> —*Commission on Innovation of the California Community Colleges*

an emphasis on *outputs*—student skills and learning.

STRATEGY TEN: ASSESS THE KNOWLEDGE AND TEACHING SKILLS OF NEW TEACHERS.

The preparation of public school teachers is one of the fundamental ways that colleges and universities directly influence the quality of public school education and, indirectly, the quality of student preparation for college. The university, state university, and the independent colleges and universities operate teacher training programs, but most California teachers are trained in the state university system.

Improvement of teacher education is an indispensable condition for the improvement of public schools. Yet the reform of teacher education has lagged. Despite major school restructuring efforts over the past decade and a half, neither colleges nor the state have made redesigning teacher education to support school reform a particularly high priority.[17] Vague commitments by colleges to work with schools have been numerous. Real change and progress in teacher education—one of the few areas in which colleges have direct responsibility and influence over the quality of schooling—have been rare.

One hopeful sign is the establishment by the state university of the Institute for Educational Reform. The Institute's February 1996 report, *The Teachers Who Teach Our Teachers*, recommended many changes, particularly: in the relationship of teacher training programs to the public schools; in state university policies that do not encourage and, in some ways actually discourage, coordination between schools of education and schools of arts and sciences; in recognition of faculty involvement in public school improvement; and in state policies that determine requirements for teacher credentials.[18] The report challenges the state university with a powerful reform agenda.

The awarding of teaching credentials is a state responsibility, just as the state is responsible for issuing licenses and credentials to professionals in law, accounting, or medicine. Unlike the other professions, prospective teachers are not tested for their knowledge and competencies against specific standards. Prospective teachers must only complete an approved program to be eligible for a credential.

Standards and assessments are no less important for those who would be teachers than they are for students. Assessment of prospective teachers, if it were to include subject matter, teaching theory, and teaching practice, would accelerate the improvement of teacher education, inform campuses of the strengths and weaknesses of their teacher education programs, assure the public of quality control, and enhance the professional stature of school teachers. The need for such an assessment has been recognized by the Institute for Educational Reform and by Policy Analysis for California Education (PACE).

STRATEGY ELEVEN: DEREGULATE COLLEGES AND UNIVERSITIES.

At a time when colleges and universities are asked to be more flexible and productive to meet public needs, it is important that laws and regulations that govern them do not impose unnecessary costs or inefficiencies. The university is constitutionally protected from many statutory and administrative requirements. The state university and the community colleges are not, and California has imposed more regulations on these two systems than other states have on similar institutions. The California Community Colleges are the most heavily regulated public colleges in the nation.

Some regulation is appropriate, of course. But the cumulative effect of years of adding incrementally to the codes has produced an unnecessarily large and cumbersome legal structure that includes many archaic, unnecessarily burdensome and expensive provisions. The *Education Code*, in its annotated version, runs to three full volumes and over four hundred pages of statutes. Other legal requirements affecting the state university and the community colleges are contained in the *Public Contract Code*, the *Health and Safety Code* and several others.

It is doubtful that a piecemeal approach can address the need to eliminate requirements of questionable value to the public, and to streamline the remaining laws and regulations. The state should, therefore, establish a systematic process to review all state laws and regulations and to remove those that are found to be of questionable value to the public. As California moves toward holding colleges more accountable for *educational results*, it should be less prescriptive regarding processes and procedures. True public accountability will leave institutions with greater discretion over *how* they function while making greater demands for demonstrated results. ◆

Acknowledgments

STAFF

Patrick Callan
Executive Director

Joni Finney
Associate Director

William Trombley
Senior Editor

Kathy Reeves Bracco
Senior Policy Analyst

Gail Moore
Director of Administration

Heather Jack
Assistant Director of Administration
and Communications

Christy Ott
Administrative Assistant

Frank Bowen and William Pickens served as senior consultants and participated in all phases of the development of *Shared Responsibility.*

The following individuals served as advisors to the Center, critiqued drafts of the report and participated in review sessions: David Breneman, William Chance, Lyman Glenny, Robert Harris, James Harvey, Gerald Hayward, Dennis Hunt, Dennis Jones, Thad Nodine, Virginia Smith, and William Zumeta.

Douglas Alexander, Kristin Burnett and William Doyle provided research support for *Shared Responsibility.*

Thad Nodine was the editor of *Shared Responsibility.*

William Chance, William Pickens, and William Zumeta developed special analyses of graduate programs, California higher education finance, and state policies affecting independent higher education respectively.

The Center acknowledges with appreciation this assistance and support.

The views expressed in *Shared Responsibility* are those of the Center.

California Higher Education Policy Center
160 West Santa Clara Street
Suite 704
San Jose, CA 95113

BEST COPY AVAILABLE

Afterword

This report calls on the people of California, government, colleges and universities, students and families to act in concert to achieve what none of them can achieve alone: the preservation of college opportunity for the current and future generations of Californians. From this perspective, the danger is not that some will take issue with the strategies proposed here. Debate over these strategies is to be expected—and welcomed, so long as those who disagree recognize the problem, and offer their own solutions. At least four dangers will arise if the problem goes unrecognized. The first is that those to whom these proposals are addressed will "hunker down," each protecting a separate turf, and each expecting the benefits of the social contract without accepting the responsibilities. Second, the illusory stability of the eye of the hurricane could prove so seductive that urgently needed action will be deferred. Third, more studies and analysis will be substituted for action. And finally, the political leadership of the state will not take the essential, initial steps toward action—will not place the challenge of preserving opportunity squarely on their own agenda and on that of the other responsible parties.

> "I think a major restructuring is almost impossible in the absence of leadership from one or more "umbrella" state voices. Even a collection of institutions can't do it in the absence of a leadership voice, either legislative or executive or both. Without that, it won't happen."
>
> *Barry Munitz, Chancellor,*
> *The California State University*

The report calls for major changes on the part of all those responsible for, and served by, California higher education. It assumes, however, that these changes can be made within the existing organizational and financial arrangements and within roles and responsibilities of public colleges and universities as presently configured. During the next year, the Center will examine these assumptions critically as part of its national projects on higher education governance and finance. However, the test of viability will not be found in studies—the Center's or anyone else's. The test will be the capacity of the colleges and universities to mobilize for constructive change, and to preserve California's legacy of broadly accessible, high quality education beyond high school. ◆

Notes

[1] *Supplement to Shared Responsibility: A Resource Guide,* (San Jose: The California Higher Education Center, 1996). This report is available without charge from the Center upon request.

[2] A panel commissioned by the Center reviewed all available projections, and recommended these as the ones most consistent with traditional policies of broad opportunity. See David W. Breneman, Leo Estrada, Gerald C. Hayward, *Tidal Wave II: An Evaluation of Enrollment Projections for California Higher Education* (San Jose: The California Higher Education Policy Center, 1995).

[3] For a full explanation of these figures, see *Supplement to Shared Responsibility*, especially the section, "Financing Tidal Wave II," by William Pickins. The $5.2 billion for the business-as-usual approach does not include any estimate of future inflation. The $6.5 billion is the 1995-96 base. If inflation were to average 3 percent annually, the cost of maintaining the purchasing power of the 1995-96 base would be 8.79 billion in 2005-06, an increase of $2.25 billion.

[4] Patrick M. Callan and Joni E. Finney, *By Design or Default?* (San Jose: The California Higher Education Policy Center, June 1993).

[5] Robert H. Atwell, "Financial Prospects for Higher Education," *Policy Perspectives*, September 1992.

[6] RAND, "Does California's Fiscal Future Bode Ill for Education? A Policy Brief" (Santa Monica: 1996), p. 2.

[7] Stephen J. Carroll, Kevin F. McCarthy and Mitchell Wade, "California's Looming Budget Crisis" in *RAND Research Review*, Fall 1994, p. 3.

[8] See two reports prepared by Public Agenda for the California Higher Education Policy Center: John Immerwahr (with Steve Farkas), *The Closing Gateway: Californians Consider Their Higher Education System* (San Jose: The California Higher Education Policy Center, 1993); and John Immerwahr (with Jill Boese), *Preserving the Higher Education Legacy: A Conversation with California Leaders* (San Jose: The California Higher Education Policy Center, March 1995).

[9] See "An Interview with Clark Kerr," *CrossTalk*, a quarterly publication of The California Higher Education Center, 1993.

[10] See William Pickens, *Financing the Plan: California's Master Plan for Higher Education, 1960 to 1994* (San Jose: The California Higher Education Policy Center, 1995).

[11] "The Golden State at Risk: A Joint Statement on the Crisis Facing California Higher Education Prepared by the Higher Education Members of the Education Roundtable," Sacramento, February 1993. For the major exception, see *Choosing the Future: An Action Agenda For Community Colleges*, a report of the Commission on Innovation to the Board of Governors of the Community Colleges (Sacramento: 1993).

[12] California Postsecondary Education Commission, *A Capacity for Growth: Enrollments, Resources, and Facilities for California Higher Education, 1993-94 to 2005-06* (Sacramento: 1995), p. 98.

[13] CPEC, *A Capacity for Growth*, p. 68; and S. Geiser and L. Guerra, *Making Better Use of the Physical Plant* (Oakland: UC Office of the President, 1994), p. 18.

[14] Lawrence E. Gladieux and Jacqueline E. King, *Trends in Student Aid: California* (San Jose: The California Higher Education Policy Center, 1995).

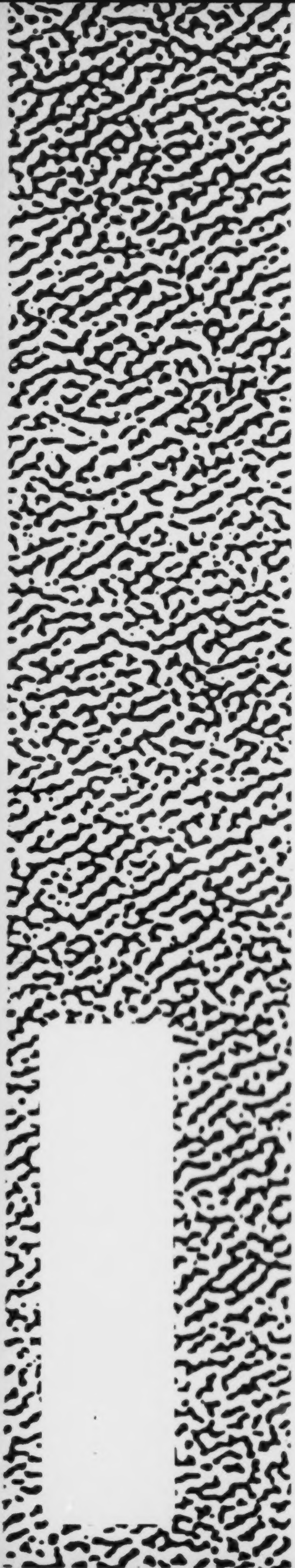
[15] President's Council of Advisors on Science and Technology, *Renewing the Promise: Research-Intensive Universities and the Nation* (Washington D.C.: 1992).

[16] The California Business Roundtable, *Mobilizing for Competitiveness*, 1984, p. 32.

[17] See particularly John Goodlad, *Teachers for Our Nation's Schools* (San Francisco: Jossey-Bass Publishers, 1990).

[18] *The Teachers Who Teach Teachers* (Sacramento: The California State University Institute for Educational Reform, 1966).

BEST COPY AVAILABLE



A SUPPLEMENT TO SHARED RESPONSIBILITY

A Resource Guide
Produced by

THE CALIFORNIA
HIGHER EDUCATION
POLICY CENTER

June 1996

A SUPPLEMENT TO SHARED RESPONSIBILITY

A Resource Guide

Prepared by
The California Higher Education Policy Center

June 1996

Table of Contents

List of Figures and Tables v
Introduction vii

Overview for Strategies One and Two 1
A. A Summary of Independent Enrollment Projections 2
B. Financing Tidal Wave II, by William Pickens 5
  California's Fiscal Crisis, 1990 to 1994 5
  A New State Policy for Financing Higher Education 5
  The Master Plan's Policies, 1960 to 1990 6
  The Block Grant Approach, 1991-1994 8
  The Revenue Guarantee Approach, 1995 - Present 8
  The Future 11
    Relevant Assumptions for Financing Tidal Wave II 11
    Projected State Costs for Financing Tidal Wave II 11
    Is it Realistic for the State to Finance These Costs? 18
    New Policies and Funding Approaches Needed 19
  Details of the Shared Responsibility Proposal 20
    a. Operations Budgets 20
    b. The Capital Outlay Challenge 21
  Summary 23
  Appendix One: Full-Time-Equivalent Student Projections 26
  Appendix Two: Technical Notes on the Projection Methodology 28
  Appendix Three: Projection of Expenditures under *Shared Responsibility* Proposal 36
C. Estimates of Savings from Strategies with Capital Implications 39
D. Examples of Programs Providing Courses on Community College Campuses 43
  1. Teletechnet at Virginia's Community Colleges 43
  2. Utah's University Centers 44
  3. Residence Centers in Missouri 45
  4. California State University, Stanislaus 46
  5. Santa Monica College 47
Endnotes for Strategies One and Two 48

Overview for Strategy Three 51
A. Diversion of Students to Private Colleges 52
B. A Transfer Student Incentive Program 54

C. State Student Aid Policies and Independent Higher Education, by William Zumeta................55
  Purposes and Research 55
  Overview of State Programs Aiding Private Institutions and Students 56
  Specially Designed Programs for Upper Division Students.......................62
  Possible Implications for California 64
  Interstate Portability of State Student Aid Grants............................65
  Conclusion 67
Endnotes for Strategy Three 68

Overview for Strategy Four..69
Explanation of the Student Share 70

Overview for Strategy Five...71
A. Examples of State Initiatives to Improve Quality 72
  1. Illinois' "Priorities, Quality and Productivity" (PQP) Initiative..........72
  2. Ohio's Selective Excellence Program..72
B. Changes in Research Across the United States 74
C. The Oversupply of Doctoral and Professional Programs in the United States...77
D. An Example of a Doctoral Program Review in Ohio 80
E. Summary of California Graduate Education, by William Chance.................83
F. NRC Ratings of Doctoral Programs in California, by William Chance...........86
Endnotes for Strategy Five 91

Overview for Strategy Six..93
A. Focusing on Student Learning and Productivity 94
B. Fiscal Impact Regarding Advanced Preparation 96
C. Examples of Early Enrollment Programs 98
  1. Project Advance at Syracuse University.....................................98
  2. Running Start, State of Washington...99
  3. The Postsecondary Enrollment Options Program in Minnesota.................100
  4. Massachusetts' Dual Enrollment Program.....................................102
  5. Long Island University: C.W. Post's SCALE Program 103
  6. California State University 104
D. Advanced Placement in California 106
E. Example of a Tuition Surcharge Program.......................................109
Endnotes for Strategy Six 110

Overview for Strategy Seven 111
A. The Stanford Roundtable on Technology 112
B. Examples of Increased Access or Productivity Through Technology 113
  1. Coastline Community College..113
  2. Mind Extension University..114
  3. The Annenberg Project: New Pathways to a Degree Program 115

4. Distance Education: California State University, Chico 119
5. Washington State University's Extended Degree Program 119
6. Virginia's Community College System 121
7. Gaining State Commitment to a Redesigned Delivery System (SHEEO/FIPSE) 122
8. Alternative Means for Delivering Instruction in Oregon 123

C. An Example of Using Technology to Restructure Academic Work 125

D. Other Data on the Use of Technology 127
1. Estimates from the Commission on Innovation Concerning Distance Learning 127
2. Data Concerning the Increased Use of Technology in the Classroom 127

Endnotes for Strategy Seven 129

Overview for Strategy Eight 131

A. Examples of Competency-Based Admissions Efforts 132
1. California's Golden State Exam 132
2. The Scholastic Assessment Test II 133
3. The Proficiency-Based Admission Policy (PASS) in Oregon 134
4. Competency-Based Admissions at the University of Wisconsin 136
5. The Next Step Project in Colorado 137

B. Improved Feedback to Schools: CSU's Academic Performance Reports 140

Endnotes for Strategy Eight 142

Overview for Strategy Nine 143

Examples of Competency-Based Learning Efforts 144
1. King's College, Wilkes-Barre, Pennsylvania 144
2. Evergreen State College, Olympia, Washington 145
3. Alverno College, Wisconsin 146

Endnotes for Strategy Nine 148

Overview for Strategy Ten 149

A. Review of Publications Regarding Teacher Assessment 150
1. A Symposium on Educational Reform 150
2. Teacher Preparation Program at CSU 150
3. Reforming California's Public Schools 151
4. A National Board Certificate for Teachers 151
5. Standards for New Teachers 151
6. College Standards and Teacher Preparation 152

B. Examples of Teacher Assessment Efforts 154
1. Kentucky 154
2. Washington State 155

Endnotes for Strategy Ten 157

Overview for Strategy Eleven 159

The California Education Code and Higher Education, by William Pickens 160

List of Figures and Tables

Figures:

1.1 Enrollment Projections for California Public Sector of Higher Education 3
1.2 Projected Growth for California Public Sector, 1994-2005 4

Tables:

1.1 Fiscal Pillars of California's Master Plan for Higher Education 6
1.2 Assumptions—and Evidence—Regarding Financing Future Enrollments 12
1.3 Projections of Undergraduate Head-Count Enrollment for the Three Public Segments 13
1.4 The State's Support Costs for Each Additional FTES Under "Business as Usual" 14
1.5 Business as Usual Operating Costs Required from the State for Tidal Wave II 15
1.6 Higher Education Capital Outlay Plans 16
1.7 Capital Outlay Costs, 1996-2005 17
1.8 Simulation of the Shared Responsibility Approach to Financing Tidal Wave II 22
1.9 Capital Outlay Costs: Business as Usual Compared to Shared Responsibility 24
1.10 Projections of Full-Time-Equivalent Students 27
1.11 Expenditure Comparisons per FTES, 1989-90 30
1.12 Various Studies of Cost Ratios per Student Credit Hour by Level of Instruction 32
1.13 Cost Differentials by Level of Instruction for CSU and UC 32
1.14 Instruction and Departmental Research Expenditures for UC, 1994-95 33
1.15 Instructional Expenditures for CSU, 1994-95 34
1.16 Projection of Expenditures Under *Shared Responsibility* Proposal 36
1.17 Increased Capacity from Individual Strategies 39
1.18 Capital Savings from Individual Strategies 40
1.19 Estimated Expenditures for Plant Operation and Maintenance for Extending the Instructional Week and Offering a Full Summer Session 42

3.1 Operating Savings from Cal Grant Proposal 53
3.2 Capital Savings from Cal Grant Proposal 53
3.3 Net Savings from Cal Grant Proposal 53
3.4 "Pure" Tuition Equalization Student Aid Programs in the States 59

3.5 Need-Based Tuition Equalization Student Aid Programs in the States 60
3.6 Number and Percent of Scholarship and Grant Awards and Dollars Provided to Undergraduate Students Attending Out-of-State Institutions 66

5.1 Estimated Long-Term Employment Gap 77
5.2 Multiplicity of Graduate Program Offerings at UC 84
5.3 California University Doctoral Programs Rated by NRC 86
5.4 California Doctoral Programs Ranked in the Top Ten by NRC 87
5.5 California Doctoral Progams Ranked by Percentage by NRC 88
5.6 Rankings of California Research Universities by Program, as Rated by the NRC 89

6.1 Savings Calculation If a Percentage of Freshmen Enroll with One Semester of College Credit 97

7.1 Cost Comparison Between ME/U and CSU 116
7.2 RIT Tuition Charges 117

11.1 California's Education Code and Higher Education 162

Introduction

This resource guide, a supplement to the report, *Shared Responsibility*, is intended to serve as a reference manual for those who are interested in further details concerning how the Center developed the strategies outlined in the Shared Responsibility approach. Included within it are data, summaries of publications, and examples of programs and efforts underway in California and across the country that will provide a context for the pressing issues—and range of options—currently facing California higher education.

The sections of the resource guide, which correspond to the strategies in *Shared Responsibility*, provide three overall kinds of information:

- Background information on California's "business as usual" approach in higher education, and the technical arguments for how the Shared Responsibility solutions could contribute to meeting the challenges facing higher education in California in the next decade;
- Reviews of studies conducted by national experts that provide a basis for many of the strategies in the shared responsibility approach; and
- Examples of efforts currently underway in California and across the country that serve as resources that readers might consult as they develop strategies and solutions to address the particular challenges facing California. Where possible, the Center has included contact persons with addresses and phone numbers in order to facilitate communication.

The ideas put forward in *Shared Responsibility* are certainly not the only solutions for California. Moreover, the wide ranging summaries and examples in this resource guide are provided not as examples of projects to employ in California; they are provided rather to increase the options available to state leaders as they seek solutions that would be uniquely tailored to California's needs. Based on these and other ideas, the center invites Californians to develop an even more effective set of strategies. The collective information included in this guide, however, does demonstrate that California state leaders face plausible options as they seek to accommodate the almost 500,000 new students in California's higher education system—while simultaneously enhancing quality and reducing the unit cost of educating these additional students.

STRATEGIES
1 and 2

STRATEGY ONE

CREATE A PUBLIC COMPACT OF SHARED RESPONSIBILITY TO MAINTAIN OPPORTUNITY AND QUALITY IN HIGHER EDUCATION.

- The Governor and Legislature should preserve the state's investment in higher education and target additional support to campuses that accept additional undergraduate students.

- The state should hold colleges and universities accountable for the enrollment of eligible undergraduate students, and for cost-effective operations, including the establishment of priorities and the reallocation of resources.

- The state should expect students to be better prepared for college and to share in the cost of increased undergraduate enrollment.

STRATEGY TWO

EXPAND THE USE OF EXISTING CAMPUSES AND FACILITIES; DO NOT BUILD NEW CAMPUSES.

- New public campuses should not be built for at least ten years.

- Maintenance and renovation of public campus facilities should be the highest priority for state capital outlay support.

- The state should require greater use of classrooms each week, and instruction should be scheduled on a year-round basis.

- The state should encourage upper division courses leading to a baccalaureate degree to be offered at selected community colleges through cooperation with public and private four-year campuses.

- The state should invest substantially in strengthening the transfer capacity of community colleges.

Overview for Strategies One and Two

The first two strategies featured in *Shared Responsibility* emphasize the fiscal aspects of a Shared Responsibility approach. As a result, the materials and data in this section respond both to strategies one and two, though several of the strategies throughout *Shared Responsibility* are also discussed in this section in terms of their fiscal ramifications.

This section begins with a summary of enrollment projections used in *Shared Responsibility* and then moves into a full fiscal analysis of the "business as usual" approach and the Shared Responsibility approach. This fiscal analysis, prepared by William H. Pickens, provides the conceptual framework and the data to support the concepts outlined in *Shared Responsibility*—both in terms of operating costs and capital outlays. This analysis also provides important information and cost analyses about student fees and the students' and families' "shares" under *Shared Responsibility*. After this analysis, this section estimates capital savings through operating campuses year-round, operating campuses during the full week, providing upper-division courses on community college campuses, diverting students to private colleges and universities, and implementing a transfer grant program for students attending private colleges and universities. Finally, this section closes with summaries of several programs across the country that currently provide upper-division courses on community college campuses, one approach suggested by the Center.

A. A Summary of Independent Enrollment Projections

It has become old news to report that undergraduate student enrollment in California higher education will increase significantly during the next decade and beyond. In fact, every recent analysis citing key demographic trends—such as the surge of public school enrollments, improvements in high school graduation rates, and the proportion of high school graduates who have completed college prep curricula—has corroborated this expected increase in student enrollments. Although analyses differ about some of the details of the enrollment increases, the clear picture from all of them is that if you assume that California must continue providing access to higher education for all qualified high school graduates (as it has done for the past 35 years), then enrollment in the state's institutions of higher education will surge dramatically during the next decade. The following information summarizes the enrollment data considered for *Shared Responsibility*.

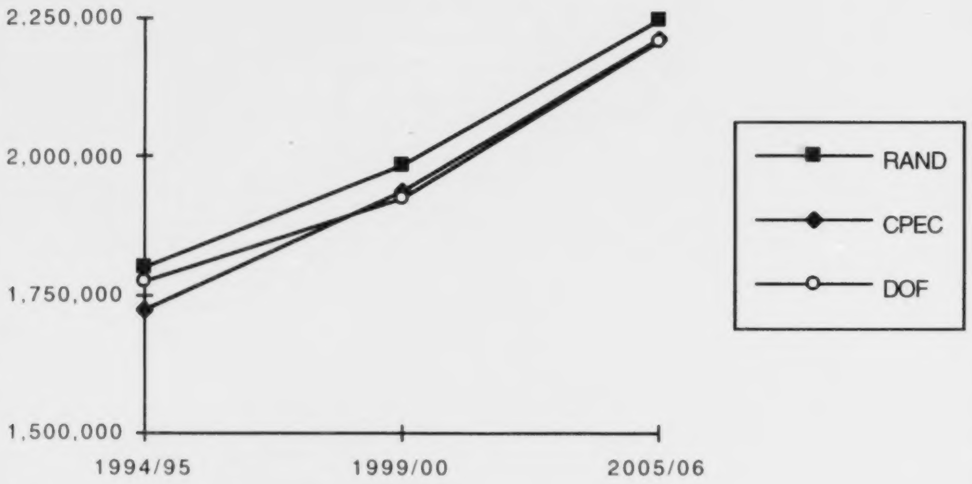
California Postsecondary Education Commission, *California Public College and University Enrollment Demand, 1994-2005*.
California State Department of Finance, *1994 Projection Series, by Segment*.
The RAND Corporation, *Master Plan Revisited*.

These and five other enrollment planning documents are summarized in the Policy Center's *Tidal Wave II: An Evaluation of Enrollment Projections for California Higher Education*, written by David W. Breneman, Leobardo F. Estrada, and Gerald C. Hayward (1995). Embedded in each of the projections are different assumptions and methodologies concerning the impact of fee increases, participation rates by racial and ethnic groups, and state financial support. Perhaps most surprising in light of these variables, however, is the degree of agreement between all of the forecasts that assumed that California would continue to provide access to higher education for all qualified high school students: The California Postsecondary Education Commission (CPEC), the Department of Finance, and the RAND Corporation project total enrollment in the public sector of California higher education to total 2.21 million, 2.21 million, and 2.24 million respectively in 2005/06 (see Figure 1.1 below).

FIGURE 1:1

Enrollment Projections for California Public Sector of Higher Education

(1960/61 to 1989/90)



Note: Projections are based on student head counts. RAND and CPEC figures represent their "baseline" projections.

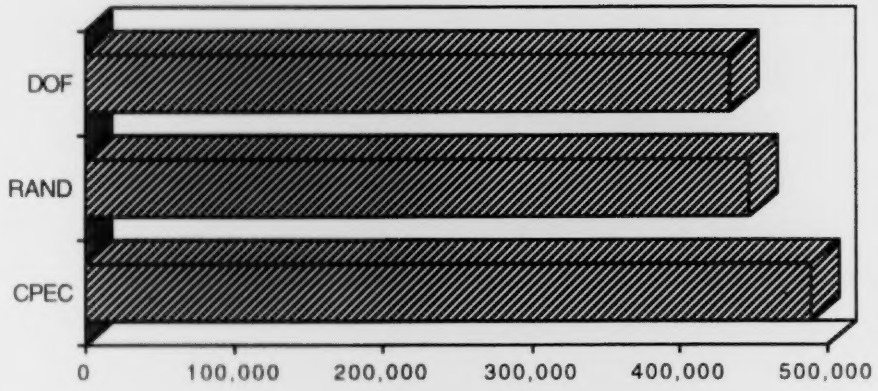
Sources: CPEC, *California Public College and University Enrollment Demand, 1994-2005,* Department of Finance, *1994 Projection Series, by Segment,* and RAND, *Master Plan Revisited.*

The growth in projected student undergraduate enrollment from 1994-95 to 2005-06 is likewise very similar for these three independent projections. As represented in Figure 1.2, the projected growth in enrollment for California's public sector of higher education ranges from almost 433,000 by the Department of Finance to just over 488,000 by CPEC, representing a difference of only 2 percent when compared to total enrollment for 2005-06.

FIGURE 1:12

Projected Enrollment Growth for California Public Sector

(1994-2005)



Note: Projections are based on student head counts. RAND and CPEC figures represent their "baseline" projections.

Sources: CPEC, *California Public College and University Enrollment Demand, 1994-2005*, Department of Finance, *1994 Projection Series, by Segment*, and RAND, *Master Plan Revisited*.

Based on the recommendations of an independent panel, the Policy Center has decided to use the 488,000 increase as projected by CPEC as the most accurate projection of the expected increase in undergraduate student enrollment from 1994-95 to 2005-06. The panel based its recommendation on the level of educational service needed to accommodate qualified high school graduates, rather than on the assumption that current, lower participation rates would continue. (Participation rates project the percentage of high school graduates who will become first-year students.) The panel also noted that internal actions by the community colleges, Cal State, and the University of California play a vital role in participation rates and other enrollment patterns.

B. Financing Tidal Wave II

By William H. Pickens
President, Bluestone Enterprises

California's Fiscal Crisis, 1990 to 1994

California's financing framework for higher education is in shambles, a casualty of recession and fiscal crisis. Though the worst of the storm appears over, the results of the early 1990s for colleges and universities should not be forgotten:

- 204,000 students "lost [due] to current policies" according to a researcher with the Public Policy Institute of California;[1]
- Student fees more than doubled in California's four-year public institutions and tripled in the Community Colleges;
- Student loan volume doubled every three years; and
- State appropriations for higher education were less in 1994 than in 1990, and state-supported capital outlay fell to a 20-year low.[2]

On the surface, higher education's problem appears to be exclusively financial. "There simply isn't enough [money] to support the system . . . in the manner to which it has become accustomed," concluded *U.S. News and World Report*. But beyond the level of resources available for higher education, the central challenge is state policy—or more accurately the lack of a comprehensive policy—to define the fiscal framework and provide realistic understandings for financing higher education.

A New State Policy for Financing Higher Education

The new policy should ensure adequate resources for Californians to continue having the opportunity to enroll in high quality colleges and universities. This paper simulates the impact of the California Higher Education Policy Center's *Shared Responsibility* proposal, with special regard for financing enrollment for the hundreds of thousands of prospective students who collectively represent "Tidal Wave II," California's second-largest growth in college and university enrollments since World War II. In terms of presentation, we first identify those fiscal elements which represented the state's approach to financing higher education under its famous "Master Plan for Higher Education." Second, we describe the collapse of this approach during the fiscal storm of the early 1990s. Third, we summarize the Governor's recent efforts to provide fiscal stability through his four year "compact." Finally, we turn to the future and answer the following questions:

- What assumptions are most relevant to financing enrollment growth in Tidal Wave II?
- What are the projected state costs to enroll all those students in "Tidal Wave II?"
- Is it realistic to assume that a policy of "business as usual" will finance their enrollment?
- If not, what new policies and funding approaches are needed?

The Master Plan's Policies, 1960 to 1990

The 1960 Master Plan's center is an overarching policy of access to high quality institutions of higher education and the opportunity to choose among them. Since 1960, this policy has been implemented through a series of fiscal understandings between the state and the institutions of higher education which provided clear guidelines and expectations of support. The central elements underpinning these fiscal understandings, as outlined in greater detail in Table 1.1, have included linking appropriations to enrollments, providing for low student fees, covering the rising costs of inflation, promoting competitive faculty salaries, and providing student aid to allow students to choose independent institutions or to offset public student fee increases.

TABLE 1.1

Fiscal Pillars of California's Master Plan for Higher Education

A space for every undergraduate student would be available;

No tuition (payment for the cost of instruction) would be charged California residents;

Students should be charged low fees, only for "auxiliary services";

Each segment would be funded for its particular mission;

Initial access to higher education would be primarily through the junior (later called community) colleges;

The University of California would be the state's principal academic agency for research and advanced graduate and professional education;

Student financial aid would be provided to allow students to choose a private institution;

Faculty salaries at public institutions should be set in comparison with similar public and private institutions;

Special assistance should be provided for disadvantaged students, for people from underrepresented groups, and for those with special needs;

Educational opportunities should be geographically convenient;

Wages and working conditions could be established through collective bargaining;

Community colleges should be located throughout the state but remain locally governed and financed.

Source: William Pickens, Financing the Plan: California's Master Plan for Higher Education, 1960 to 1994 (San Jose: California Higher Education Policy Center, May 1995), p. 18.

Before 1991, even though the state's approach to funding higher education varied from segment to segment, the fiscal pillars in Table 1.1 were found, to a considerable degree, within each approach.

The Public Four-Year Segments

Under the Master Plan, the University of California and the California State University were treated as statewide institutions and were organized as "systems" of campuses under their single governing boards. Each system, rather than individual campuses, received funds through a line item in the state's budget act which had traditionally classified state-financed activities into a dozen major programs (instruction, research, public service, academic support, student services, student financial aid, etc.). Before 1991, the greater part of the state-funded portion of budgets for both the university and the state university was based on enrollment.

The University of California received state funding for adding faculty but for no other portion of its budget for enrollment growth alone. In contrast, virtually all of the state-funded budget for the California State University was adjusted for enrollment changes between 1961 and 1991, except for physical plant operations—either through a full-time-equivalent-student calculation or head-count enrollment, or variations of both. For many years, instructional budgets for both the university and the state university were adjusted according to a fixed "student/faculty ratio," which added or subtracted funding for faculty *positions* on the basis of enrollment, without distinction between undergraduate or graduate students.

Both these systems use statewide salary schedules which, though different between the systems, establish similar ranks (professor, associate professor, etc.) and establish "steps" within each rank. Over the years, the state adopted an approach of providing funds to adjust faculty salaries in order to recognize the average faculty salaries at comparison institutions. Although each system has a different set of comparison institutions in other states with broadly similar roles and missions, the methodology has been generally accepted by the Legislature and Governor since the mid-sixties, and was followed consistently during the 1980s in providing compensation increases.

The California Community Colleges

Because they are considered "local" institutions and similar to the public schools, state support for the community colleges has been calculated differently. From the beginning, formulas based on "Average Daily Attendance" (ADA) were used which provided a flat amount per student *for each district*, adjusted annually by some general, statutory measures of growth and inflation. Before Proposition 13 (1978), state funds were provided partly to recognize enrollment growth and partly to equalize the funding behind each student in the community colleges. After Proposition 13, local property taxes receded in importance and state funding increased dramatically. Following adoption of the community colleges' major reform bill (AB 1725, 1988), the funds were provided to districts according to different workload measures in five programs: instruction (based on full-time-equivalent students, or FTES), academic support, student services, institutional support, and physical plant operation/maintenance.

The Community Colleges are also part of the distribution of state General Funds specified in Proposition 98 (1988), constitutionally guaranteed to the K–12 and California's two-year public colleges. Although Proposition 98 did not identify a specific proportion of revenues for either sector, it originally set aside 40 percent of the state's annual general fund appropriations for both together, and continues to guarantee a certain minimum level of funding for K–12 and the community colleges. No similar constitutional provision operates for the university or the state university.

Student Financial Aid

State-funded student financial aid was originally designed to provide students with an opportunity to attend a non-public college or university. In 1961, 91 percent of the State Scholarship Commission's grants were provided to students in independent institutions. By 1989, that proportion had fallen to 44 percent, partly because the Cal Grant maximum fell rapidly behind the average tuition in the independent sector during the 1980s, and partly because the escalating student fees at UC and CSU between 1981 and 1983 increased the calculated "need" for their students.

The Block Grant Approach, 1991-1994

Because of the state's unprecedented fiscal crisis, the years after 1990 witnessed a virtual collapse of the *state's* recognition of the Master Plan's financial elements. Enrollment levels in higher education were decoupled from appropriations, and the three public segments were given, in effect, a "block grant." In 1991, the Governor urged the governing boards to use a fee increase to offset the state cuts. In 1992, the Governor's budget proposed that the CSU Board of Trustees "be authorized to impose a fee increase up to 40 percent above the 1991-92 level [with] commensurate financial aid" (p. E-89). In 1993, the Legislative Analyst complained that the Governor's proposed budget "contains major unallocated spending reductions for all higher education segments. The budget does not propose enrollment or student fee levels at the University of California (UC) or the California State University (CSU) . . . [but does recommend] legislation authorizing the Board of Governors to raise [community college] fees from $10 per credit unit to up to $30 per credit unit, to offset all or a portion of the reduction in available funds."[3] Despite rapidly increasing fees in the public segments, the state actually *reduced* funding for Cal Grant student aid by $6.8 million in 1991-92 and by $25.6 million in 1992-93.[4] During these years, fiscal stringency and a "policy vacuum" best describe the situation. The state struggled hard to provide funds to the public segments of higher education in California, along with providing maximum flexibility for the institutions, as the Governor wished. Enrollments were left primarily to institutional decisions.

After state General Funds fell about 18 percent for higher education (with some offset in property taxes for the community colleges), the state's higher education appropriations in 1994-95 increased for the first time in the decade. The three public segments and the Student Aid Commission together received state appropriations—including property tax revenues for the Community Colleges—which were four percent higher than the year earlier. To be sure, this support and a ten percent student fee increase in the university and the state university allowed some stability. But the major fiscal elements of the Master Plan-–funding enrollments, low fees adjusted gradually, student financial aid sufficient to allow choice, and competitive salaries—remained, at least in 1994, in limbo.

The Revenue Guarantee Approach, 1995 - Present

In 1995, Governor Wilson's proposed budget took a first step toward addressing the policy vacuum in the state's framework for financing higher education. The Governor wrote that the State of California "owes much of its economic competitiveness and social vitality to its long-standing commitment to higher education." The basic goal of the Master Plan, "that all qualified students should have the opportunity to enroll in a high quality, affordable, public higher education institution," was jeopardized by "the fiscal difficulties of the early 1990s." The Governor concluded, however, that since the state's resources "have [now] begun to improve, the investment in higher education must be renewed."[5]

The University of California and the California State University

Beginning in the 1995-96 Budget, the Governor proposed a four-year plan and a "compact" with the University of California and the California State University "to provide a framework of budgetary stability." The primary features of this framework include:

- State appropriation increases averaging four percent each year;
- Student fee levels to be determined by the governing boards of the university and the state university ("It is anticipated that the UC and the CSU governing boards will act to raise student fees by at least 10 percent" in 1995-96.);[6]
- Policies regarding fee increases and student financial aid tied together "to assure that financial circumstances are not a barrier to access" (UC and CSU should reserve at least one-third of the additional student fee revenue for financial aid);[7]
- The Cal Grant program should be expanded in conjunction with the UC and CSU fee increases;
- Increased enrollment planning in UC and CSU "such that over the four-year period general [i.e., undergraduate] enrollment will grow by an amount averaging about one percent annually;"[8]
- Portability of courses, such as joint UC/CSU graduate programs, to improve the transfer of students from the community colleges to UC/CSU and improve the transferability of course credits to the four-year segments;[9]
- Productivity and administrative efficiency would be expected to increase (an annual reduction of $10 million in state funds was promised);
- The university and the state university are to place high priority on improving time-to-graduation;
- Capital outlay of roughly $150 million annually for each segment, with priority on seismic and life safety projects, infrastructure and educational technology; and
- UC and CSU are to place high priority on "restoring faculty salaries to competitive levels over the next four years, with an emphasis on merit-based increases."[10]

The California Community Colleges

The Governor's "compact" did not include the community colleges because their "budget . . . must be determined on an annual basis, since the majority of their funding is derived from the Proposition 98 guarantee."[11] The Chancellor's Office distributes general apportionments "on a formula basis consisting of the following components: base, inflation, equalization and growth."[12] The Governor did propose, however, that student fees be increased for community college students, along with financial aid.

Independent Institutions

In his 1995-96 budget, the Governor did not address the issue of independent institutions. The number of Cal Grants was the same as in the prior year, as was the maximum grant—two of the elements most important to the independent sector. The proportion of Cal grants provided to students in independent institutions continued its long-term decline, falling steadily from 42 percent in 1990-91 to 30.5 percent in 1994-95.[13]

Student Fees in Public Colleges and Universities

The Governor's proposed budget in January 1995 offered this policy statement about student fees:

> California's Master plan for Higher Education is based on three principles: (1) high quality educational programs, (2) open access for all who meet specified entrance criteria, and (3) affordability. Until recently the state had sufficient resources to pursue *the goal of affordability* through a policy of charging low fees to all students. The severe fiscal constraints of the early 1990s, however, prevented the continuation of "business as usual."
>
> As a result of these constraints, the state faced a difficult policy choice: either (1) severely cut back access or compromise quality, in order to continue a policy of providing deep subsidies to all, irrespective of ability to pay, or (2) require those who could afford to pay higher fees to do so, while providing additional financial aid for those who could not, in order to maintain quality and preserve open access. The Administration chose the latter course, recasting affordability in terms of ability to pay. By allowing student fees to increase, the state was able to provide for more faculty, students, and financial aid than would otherwise have been possible. (italics added)[14]

The central priority in the 1995 "higher education compact" between the four-year public segments and the Governor was stability for the institutions, with the opportunity for some regrouping and modest progress for all higher education.

The Compact's Second Year

Governor Wilson's proposed budget for 1996-97 offers several generous increases for higher education beyond the original "compact," but does not significantly alter the compact's framework. The major adjustment is to provide state revenues sufficient "to avoid a fee increase at both UC and CSU. This will mean that students will have level fees for the first two years of the compact."[15]

For the support budgets, the Governor proposes an increase of $403.5 million (4.3 percent) which includes revenues from General Funds, lottery funds, property taxes, and student fees—the largest overall increase this decade.

For student aid, the most significant recommendation is to increase the Cal Grant maximum award from $5,250 to $7,100 for new recipients, a major benefit to independent colleges and universities.[16] Various authorities predict a shift of several thousand students from public institutions into the independent sector because of this change,[17] while the Legislative Analyst believes it is "unlikely that the proposal will influence very many students to attend a nonpublic institution in future years."[18]

Enrollments in the four-year segments were funded according to the one percent agreement in the Governor's compact.

The Future

1. What assumptions are most relevant to financing enrollment growth in Tidal Wave II?

This paper focuses on ways to accommodate the 488,000 additional undergraduate students who will seek admission between 1994 and 2005.[19] We begin with the same assumption as Governor Wilson that the state's interest in higher education remains strong, and that the public is well served by continuing California's world-class system of postsecondary institutions. But other assumptions are important for evaluating the feasibility of financing the additional enrollments. These assumptions, along with supporting evidence, are provided in Table 1.2 on page 12.

2. What are the projected state costs to enroll all those undergraduate students in "Tidal Wave II?"

Since so little remains "usual" after the disruption of higher education finance during the early 1990s, the task of defining "business as usual" presents a challenge. Nevertheless, recent information offers a solid basis for estimating "business as usual" both in the areas of *operating costs* and *capital outlay expenditures necessary to enroll the new students.*

a. Operating Costs for Tidal Wave II

After extensive consideration, the California Postsecondary Education Commission published a set of undergraduate head-count enrollments as "baseline data" for the three public segments, as shown in Table 1.3 on page 13. These figures project that from 1994 to 2005 undergraduate enrollment will increase by just over 488,000 students, or an increase of over 28 percent.

TABLE 1.2

Assumptions—and Evidence—Regarding Financing Future Enrollments

488,000 More Students	About 488,000 additional students will seek undergraduate enrollment in California institutions between 1994 and 2005. An independent panel of experts, after examining nine sets of enrollment forecasts, concluded that CPEC's projections "most nearly comport" with the Master Plan's commitment to access.	Source: *A Capacity for Growth: Enrollments, Resources, and Facilities for California Higher Education, 1993-94 to 2005-06* (Sacramento: California Postsecondary Education Commission, 1995), p. 3. Source: David W. Breneman, Leobardo F. Estrada, and Gerald C. Hayward, reporting in *Tidal Wave II* (San Jose: California Higher Education Policy Center, 1995), p. 18.
$2.2 Billion More Needed Just to Maintain Existing System—i.e., Without Adding More Students	Inflation and the need for salaries to remain competitive will continue to increase the cost of providing higher education. If the costs of serving the current number of students increases by just 3 percent annually over the next ten years, approximately $2.2 billion more will be needed just to maintain the existing system.	Over the past 30 years, annual appropriations to cover inflation and salary adjustments comprise roughly 80 percent of the new dollars available to higher education in California. Without adding any new students, the state General Funds needed for higher education will increase from $6.5 to $8.8 billion in 2005-06 with only 3 percent inflation per year.
Physical Plants are Deteriorating Significantly	The condition of the existing physical plant in public institutions has deteriorated to the degree that larger investments must be made in maintenance, repair and renovation of facilities are to continue viable.	"Maintenance problems that have become so persistent compromise the university's ability to fulfill its education mission and maintain the quality of its programs." —UC President's Office, 1996[20] "Basic maintenance, renovation and repair requirements of our physical plant infrastructure were deferred. . . . The backlog created by this deferral can no longer be ignored and must be addressed to ensure safety as well as access for the students of Tidal Wave II who are headed to our campuses over the next 15 years. —CSU Chancellor's Office, 1996[21]
Slower Growth in State Revenues	The annual percent growth of state revenues for the next decade will be much less than in any decade since World War II.	"Even in [an] optimistic budget case, [the] state cannot fund future demand for higher education." —Michael Shires, Research Fellow Public Policy Institute of California
The Use of Technology	The use of modern technology in educational and administrative functions has profound implications for the delivery of higher education's services, productivity of its operations, and educational costs	"In the Information Age, the power of the learning vision will pull forward new uses of information technology that will . . . greatly enhance the productivity of learning systems to meet rapidly expanding demand for learning opportunities." —Dolence and Norris Transforming Higher Education[22]

BEST COPY AVAILABLE

TABLE 1.3

Projections of Undergraduate Head-Count Enrollment for the Three Public Segments

Prepared by the California Postsecondary Education Commission
August 1995

	Actual **1994**	*Projected* **1995**	*Projected* **1996**	*Projected* **1997**	*Projected* **1998**	*Projected* **1999**	*Projected* **2000**	*Projected* **2001**	*Projected* **2002**	*Projected* **2003**	*Projected* **2004**	*Projected* **2005**	*Total* **1994-2005**
UC	123,873	125,404	126,936	128,468	130,004	131,551	135,068	138,890	142,578	146,145	149,771	152,930	29,057
CSU	261,508	261,474	264,042	268,894	273,746	277,894	285,044	293,287	302,317	314,456	325,221	335,396	73,888
CCC*	1,337,085	1,355,358	1,374,562	1,435,063	1,488,052	1,525,501	1,597,317	1,619,693	1,646,366	1,670,978	1,700,088	1,722,170	385,085

* Includes credit and state-funded non-credit enrollments.

Total Projected Undergraduate Enrollment Increase, 1994 to 2005: 488,030 or +28.3 percent

If these undergraduate head-count enrollments from CPEC are converted into the standard measure for budgets, full-time equivalent students (FTES), the commission's projections can yield annual enrollments for use in fiscal projections (see Appendix One). The number of *additional* full-time-equivalent students can then be multiplied by the "marginal rate" for each student—that is, the state's traditional support cost for each *additional* FTES. These rates are displayed in Table 1.4. (See the notes to Table 1.4—and Appendix Two—concerning the concept of a "marginal rate" for the community colleges.)

TABLE 1.4

The State's Support Cost for Each Additional FTES Under "Business as Usual"

Public Segment	*Marginal Rate*
University of California	$6,809[a]
California State University	$4,734[b]
California Community Colleges	$3,050[c]

[a] *Analysis of the 1996/97 Budget Bill* (Office of the Legislative Analyst), p. F-29.

[b] *Analysis of the 1996/97 Budget Bill* (OLA), p. F-29

[c] *Analysis of the 1996/97 Budget Bill* (OLA), p. F-11; *Governor's 1996/97 Budget*, p. E-68. Technically, this is not the "marginal rate" in the way it is calculated for UC and CSU. This amount consists of the $37.9 million recommended in the Governor's Budget divided by the 12,428 FTE (the statutory increase of enrollment generated by a 1.46 percent increase in California's adult population). The amount recommended for the 3,332 FTE in new education centers is somewhat lower, at $3,000 per FTE. This amount is provided through a combination of state General Fund appropriations and property tax revenues. It is not possible to be certain what the "marginal rate" for the CCC would be in the future but this is the best, current estimate for business as usual.

Using these rates, Table 1.5 displays the annual costs for all the additional students of Tidal Wave II in terms of 1995 dollars (no increases for inflation are applied here). The table indicates that if the state pays for these students with General Funds (and property taxes at the community colleges), the annual average increase in appropriations will have to be *$117 million for operating costs for the purpose of enrollment growth alone.* For comparison, the Governor's proposed budget for 1996-97, the most favorable for higher education in a decade, provides $68.7 million for enrollment increases (UC = $9.0; CSU = $11.8; CCC = $47.9)—or only 60 percent of the total increase required *each year* for "Tidal Wave II."

TABLE 1.5

Business as Usual Operating Costs Required from the State for Tidal Wave II

Public Segment	*1996/97*	*1997/98*	*1998/99*	*1999/2000*	*2000/2001*	
University of California	$9,545,748	$9,545,748	$9,570,671	$9,639,211	$21,914,096	
California State University	$9,919,969	$18,742,870	$18,742,870	$16,023,377	$27,619,852	
California Community Colleges	$37,437,741	$117,945,260	$103,300,795	$73,005,935	$140,003,584	
Public Segment	*2001/02*	*2002/03*	*2003/04*	*2004/05*	*2005/06*	*Increase 1996/97 to 2005/06*
University of California	$23,814,522	$22,979,581	$22,225,641	$22,593,265	$19,683,432	$171,511,915
California State University	$31,842,019	$34,882,135	$46,891,941	$41,584,294	$39,305,174	$285,554,502
California Community Colleges	$43,621,480	$51,998,379	$47,980,509	$56,749,253	$43,048,334	$715,091,268

Total Amount Required for Operating Costs for Tidal Wave II Undergraduate Students, 1996/97 to 2005/06:	$1,172,157,685
Annual Average Required for Operating Costs for Tidal Wave II Undergraduate Students, 1996/97 to 2005/06:	$117,215,768

b. Capital Outlay Costs for Tidal Wave II

Accommodating these students in surroundings appropriate for their education represents an expense far beyond the average annual operating costs. It is difficult, however, to translate enrollment demand directly into space allotments or construction costs because:

- while California has established "utilization formulas" for space, these are concerned *primarily* with classrooms and teaching laboratories, which represent only 43.5 percent of the space in the community colleges, 26.2 percent in the state university, and 8.1 percent in the university;[23] and

- modern technology permits far more flexibility in instructional delivery than in earlier years, to the extent of greatly reducing and sometimes eliminating altogether the need for new space exclusively for new students.[24]

As a result, capital outlay figures for "business as usual" are very slippery and, most often, are unrealistic. Each of the public segments has produced capital projections for new space at various times, and each is required annually to submit a five-year "plan" to the Department of Finance. Table 1.6 displays the most recent submissions.

TABLE 1.6

Higher Education Capital Outlay Plans

(Dollars in Millions)

	1996-97	*1997-98*	*1998-99*	*1999-00*	*2000-01*	*Totals*
UC	$152.3	$153.2	$149.8	$150.8	$150.2	$756.3
CSU	$416.4	$375.8	$402.0	$676.0	$457.2	$2,327.4
CCC	The Chancellor's Office has presented no statewide plan. The total from all district requests is:					$3,526.0
Five-Year Total						**$6,609.7**

Sources: UC, "Capital Improvements 1996/97"; CSU, "Capital Outlay Program 1996/97," p. 11; and Office of the Legislative Analyst, *Analysis of the 1996/97 Budget Bill*, p. 1-17. The most recent comprehensive plan from the CCC is represented in the Board of Governors' *Long-Range Capital Outlay Growth Plan* (Sacramento: The Chancellor's Office, January 1991).

Within the total of $6.6 billion represented in Table 1.6, approximately $1.5 billion is proposed for building renovations, $3.6 billion for new buildings, and $564 million for off-campus centers. It is important to note, however, that this amount represents proposals only through 2001, only one half of the time for "Tidal Wave II" projections. Extending through the full course of "Tidal Wave II," it is reasonable to assume that the three public segments are proposing capital outlay expenditures *above $10 billion*. Interest on the bonds for this construction would add substantial additional costs. Observing this enormous figure, the Legislative Analyst writes: "Given the virtual certainty that funding of this magnitude will not be available . . . it is essential that the segments prepare five year plans that truly fit their near term capital outlay needs."[25]

Does *business as usual* have a more credible projection for the capital needs of higher education? We believe the most comprehensive and balanced appraisal in this regard is CPEC's report, A

Capacity for Growth, published in August 1995. In that report, the commission projects capital outlay needs according to those required to maintain the existing physical plant and those to accommodate the additional enrollment.

Regarding the existing plant, the Commission concludes:

- "Annual capital outlay appropriations of about *$625 million per year* ($225 million at CCC; $250 million at CSU; $150 million at UC) for these purposes [maintenance, repair, renovation] is reasonable, and will permit the [existing] 137 campuses that comprise California public higher education to maintain their vast physical infrastructure in good condition" (emphasis added).[26]

Regarding enrollment expansion, the Commission estimates costs of:

- "*$400 million per year* ($105 million at CCC; $145 million at CSU; $150 million at UC) over the next ten years."[27]

Table 1.7 displays the full magnitude of the commission's most recent estimates of future capital costs, which are considerably below those requests from the segments.

TABLE 1.7

Capital Outlay Costs, 1996-2005

(Dollars in Millions)

	Maintain Existing Campuses		**Accommodate Enrollment Growth**	
	Each Year	*Full Decade*	*Each Year*	*Full Decade*
California Community Colleges	$225		$105	
California State University	$250		$145	
University of California	$150		$150	
Annual Totals, All Segments	$625		$400	
Totals for Full Decade, All Segments		**$6,250**		**$4,000**

Note: These estimates are based on CPEC projections, 1995. They exclude interest on any bonds to finance capital investment.

c. The Total Costs for Business As Usual

The costs, both in the operations and capital outlay categories, for accommodating the additional students of Tidal Wave II total almost *$5.2 billion* over the next ten years, or *$516 million per year* between 1996-97 and 2005-06:

$1,172,157,685 (Support)
$4,000,000,000 (Capital Outlay)
$5,172,157,685 (Total)

This total does not include any provision for inflation (these estimates are all in 1996 dollars.) If inflation were to continue at three percent per year, the amount required through the decade would be roughly $760 million above the estimated total above.

3. Is it realistic to assume that the State of California will provide appropriations to finance the enrollment of Tidal Wave II students according to these projections?

We believe the answer is a categorical "no" for the following reasons.

Higher education will need state appropriations to support other critical areas as well as enrollment growth. All segments believe they are currently underfunded for their present responsibilities:

- According to CSU, "there is a deferred 'gap' in funding for CSU needs of $804 million in operating, deferred maintenance and faculty compensation costs."[28]
- According to UC, "the university budget would be about $900 million greater if the state had maintained the base and funded normal cost increases and workload growth over the four years 1990-91 through 1993-94."[29]

While these statements represent a view based on past practices, funding pressures for additional state appropriations come from several areas which will compete strongly with additional enrollments for funding. Salaries and facilities maintenance are two prime examples:

Salaries:[30]

> "Preliminary estimates indicate that UC faculty salaries will lag more than 7 percent behind salaries at the comparison institutions in 1995-96."[31]
>
> "During 1995-96, [according to] CSU faculty salary calculations, salaries lagged behind the average salary at comparable institutions by 12.7 percent."[32]

Facilities Maintenance, Repair, Renovation:

> A backlog of deferred maintenance of $380 million exists within the University of California, with $150 million considered critical.[33]
>
> "The existing level of deferred maintenance backlog [at CSU] exceeds $325 million,"[34] with $35 million considered critical.[35]

> The deferred maintenance backlog at the California Community Colleges is estimated at $200 million.[36]
>
> National authorities suggest that the facilities "reinvestment rate" (the amount each year which should be set aside to replace and renew aging facilities) ranges between 1.5 percent and 3.5 percent of current replacement value annually.[37] This calculation would yield a need for hundreds of millions of dollars annually, given the enormous size of California's facilities in public higher education.

Only a small proportion of state appropriation increases have been provided for enrollment growth in the past—averaging between 10 and 20 percent of the total annual increase. How would these historical levels compare to business as usual in the future?

The state provided a total appropriation increase (including property tax adjustments for community colleges) of around $230 million in the state's Budget Act of 1995-96.[38] To fund enrollment growth in business as usual, however, Table 1.5 (on page 15) indicates that *more than one-half* of this 1995-96 increase ($117 million) would have to be earmarked *just for enrollment growth.*

Finally, most authorities are skeptical that the state can finance this kind of growth. "If current trends persist to 2005," the RAND Corporation's Institute on Education & Training concluded recently, "the University of California and the California State University systems will have to turn away more than 135,000 full-time equivalent students while California's community colleges will turn away another 180,000 full-time equivalent, degree-credit students."[39] Even the California Postsecondary Education Commission, while more optimistic than RAND that support budgets might keep pace, concludes that "the prospects for capital outlay funding are exceptionally poor. . . . [T]he Commission can find no combination of practical possibilities that would produce savings or revenue sufficient to satisfy the total need."[40] "Under the best of circumstances," the commission's director wrote in October 1995, "it may be possible . . . to raise about half to two-thirds of the needed funds."[41]

4. What New Policies and Funding Approaches Should Be Adopted for "Tidal Wave II"?

Shared Responsibility provides a substantially new approach to meeting the student demand in Tidal Wave II. To be realistic, the new approach should contain the following elements:

Additional funds should be provided based on expenditures for undergraduate students only.

"Business as usual" provides amounts based on an *all* students averages at the UC and the CSU. Since the state's commitment under the Master Plan was for undergraduate students, the state's fiscal commitment should be to provide support based on the expenditure pattern for undergraduates only. Funds for increased graduate enrollments should be provided based on explicit state policy and on the estimated costs for those students alone.

The resources needed to accommodate additional enrollments should be a responsibility shared between the state, all students, and the institutions.

In addition to maintaining the purchasing power of higher education base budgets, the state should commit to providing *fully one-third of the projected expenditures* needed to accommodate these enrollments, plus the student financial aid required by student fee increases. Subject to an annual cap, *all* students should bear responsibility for sharing the costs (exclusive of student financial aid), so that the burden is not imposed solely on those students who are new to higher education. The institutions of higher education should accommodate their share of the expense through internal re-organization, increased efficiencies, and alternative delivery methods. These resources and the shares are identified in Appendix Three.

The state should accept the long-range commitment of providing financial aid resources equal to one-third of the additional student fees required to accommodate Tidal Wave II demand.

The "business as usual" approach involves a recycling of a large portion of student fee revenues as financial aid, so that some students subsidize the attendance of other students. For the student fee increases necessary to support the additional demand of Tidal Wave II, we believe the state should ensure that sufficient funds are provided to cover the increase in student financial aid. The one-third proportion is the ratio identified in the Governor's current compact with higher education.

Details of the Shared Responsibility Proposal

a. Operations Budgets

If the policies outlined above were adopted, how would funding change to account for the additional expense of "Tidal Wave II" demand? To answer this question, we began with the undergraduate enrollment projections in Table 1.3 and converted them to FTES for each of the public segments (see Appendix One). We then calculated an estimated instructional cost *for undergraduate students only* for each of the segments in 1994-95, using official reports in the Governor's Budget and those national studies of instructional expenditures described in Appendix Two.

We assumed that the full amount of these instructional costs should be provided to educate each additional student (not taking inflation into account in the projections). We then estimated non-instructional costs for undergraduate students using information from CPEC's 1993 study on costs, *Expenditures for University Instruction*. The amount to provide for non-instructional costs is more problematic. After reviewing the literature on the relationships of non-instructional expenditures to overall costs, we made the assumption that half the amount of these non-instructional costs should be provided to support each additional student since "economies of scale" are present and non-instructional costs do not increase in direct proportion to enrollment changes.[42]

For each segment, these two calculations of instructional and one-half of the non-instructional expenditures were added together to equal the *total* cost of enrolling the new students (see Appendix Three). This *total cost* was then assumed to be shared equally between the state, the students and the institutions *for the purposes of this simulation* (the ratio could be modified depending on the circumstances within each segment). Indeed, after evaluating the distribution, it seemed appropriate to adjust the amount indicated for the California Community Colleges. Because of the sheer numbers projected to enroll in these two-year colleges, the *Shared Responsibility* approach places the largest fiscal burden on that segment. The institutional contribution for additional students in California's two-year colleges is approximately $181 million, more than 50 percent of the unadjusted, institutional amount required as a "contribution" from all public colleges and universities over the next ten years. This fiscal burden appears too great for the community colleges if they are to meet the needs of students with quality programs and services. Therefore, the *Shared Responsibility* proposal is that the state provide $10 million annually to the community colleges as a supplementary appropriation, or $100 million over the decade. This calculation is provided in Appendix Three.

Table 1.8 shows the results of these assumptions and calculations, and Appendix Three provides the data for each segment. This table indicates that the operations budget resources needed to accommodate all students in Tidal Wave II is $1.02 billion. If fair shares are applied according to the Shared Responsibility approach described above and adjusted by student fee caps and the CCC supplementary appropriation, the state would provide about $596 million of this amount (including student financial aid), while all students would roughly contribute $289 million. The public institutions of higher education would absorb the remaining costs (according to these calculations, roughly $241 million) by adopting the strategies described in other sections of this resource guide.

b. The Capital Outlay Challenge

Fiscally, the chief stumbling block in accommodating "Tidal Wave II" students is the cost of new construction. No credible authority believes that the state's taxpayers will be able or willing to provide anything approaching the *$4 billion necessary for enrollment growth only* in a "business as usual" scenario. The challenge is how to reduce this obligation *considerably*, while still providing a quality education for all students. To succeed, California must create major changes in policies and orientation toward ways of providing educational opportunity. Several steps are necessary for these changes to take place.

First, the expectation that new students should be accommodated in new facilities has to be replaced with a wide-ranging search for alternatives. To do this, the state should insist that new construction in the public segments to accommodate the additional students should occur only as a last resort and under the most compelling circumstances. Today, many alternatives are available that could allow more students to receive a quality education without building new facilities.

How much can be saved from the $4 billion expansion costs if alternatives are aggressively pursued? Our evaluation suggests that the full use of existing capacity, serious pursuit of non-traditional delivery systems, expansion of educational hours and state-supported summer sessions, and use of the independent sector can reduce the capital outlay need to accommodate new students by fully three-fourths, or by $3 billion.

The Commission on Innovation recently recommended "employing three major strategies in order to accommodate at least 75 percent of new students who [in CCC] over the next 12 years: (1) greatly expanded use of distance education centers, (2) making greater use of facilities during afternoon hours, and (3) year-round operations."[43] In another report, CPEC wrote that:

> Cost savings may be achieved if . . . facilities are designed to facilitate new technologies, pedagogies, and administrative arrangements and if existing standards for determining space needs are revised to reflect efficiencies created by advanced computers and software programs, expansions of access created by distance learning technologies, and changing needs for office space created by flatter and more flexible management systems.[44]

Beyond being prudent, such strategies cited above and explained elsewhere in this guide will allow expansionary capital outlay funds to be diverted to maintaining the facilities in operation now. Under the shared responsibility approach, *existing campuses and facilities would have highest priority* for maintenance, repair and remodeling before any new facilities are constructed. The urgent need for such a priority has recently been emphasized by the Legislative Analyst:

TABLE 1.8

Simulation of the Shared Responsibility Approach to Financing Tidal Wave II

(In Millions of Dollars)

Summary of All Three Segments	*1996/97 Increase*	*1997/98 Increase*	*1998/99 Increase*	*1999/00 Increase*	*2000/01 Increase*	*2001/02 Increase*	*2002/03 Increase*	*2003/04 Increase*	*2004/05 Increase*	*2005/06 Increase*	Totals for Undergraduates *Only 1996-2005*
Projected Instructional Expenditures	$36.0	$90.4	$81.9	$62.1	$118.2	$67.6	$74.7	$82.8	$83.3	$71.6	$768.7
Projected Non-Instructional Expenditures at 50% Rate	$12.1	$29.6	$26.9	$20.5	$39.2	$22.8	$25.0	$27.5	$27.7	$23.8	$255.0
Total, Annual Expenditures with Instructional and Non-Instructional Combined	$48.1	$120.0	$108.8	$82.5	$157.4	$90.4	$99.7	$110.3	$111.0	$95.4	$1,023.7
Total Students' Share of Cost Increase [without Student Financial Aid (SFA)]	$16.0	$21.0	$21.8	$21.4	$39.5	$30.1	$33.2	$36.8	$37.0	$31.8	$288.7
Total State's Share of Cost Increase (includes SFA, Amount above Student Fee Annual Caps and CCC Supplement)	$30.8	$81.0	$71.6	$51.9	$91.1	$49.2	$53.2	$57.8	$58.1	$51.4	$596.1

Note: For an explanation of methodology, see Appendix Two.

> Over the past 10 to 15 years, California's three public higher education systems have been in a state of constant maintenance deferral. . . . Based on our campus visits, we believe that the total deferred maintenance backlog is in the range of several hundreds of millions of dollars. . . . A long-run strategy to address maintenance failures at the state's higher education segments is essential to protect the state's investment in higher education buildings and infrastructure.[45]

Second, the state should be clear that it will not authorize any new campuses through 2005-06. A clear and steadfast moratorium on plans for new campuses might encourage more attention to the needs of California's existing infrastructure in higher education.

Third, the state should provide fiscal incentives for students to choose an independent institution in California through the provision of increased financial aid. A study of the independent sector predicted that 36,000 students would be attracted to private colleges and universities if the Cal Grant maximum were established at its statutory goal and the number of awards were increased by 20 percent.[46] Several years ago, the CPEC staff estimated that—by increasing the maximum allowable award for needy independent students approximately $1,300 per year—somewhere between 1,300 and 1,700 California resident students per year would be diverted away from the University of California.[47] The Legislative Analyst projects a lower number "over the long-run," based on the Governor's proposed increase in 1996-97 for the Cal Grant maximum—some 1,100 from the UC and the CSU to independent institutions.[48] While cost estimates for this diversion are admittedly speculative, the annual state investment in such a policy would surely be less than the new construction costs per student which range from $10,000 per student at the community colleges to $33,000 for the CSU and more for the University of California.[49]

Table 1.9 presents the capital outlay projections in a "business as usual" scenario, using CPEC's estimates which are lower than those from the institutions themselves—compared with the Shared Responsibility approach. As this table reveals, the *Shared Responsibility* proposal places the highest priority on maintaining existing physical plants on existing campuses. As a result, estimates for Shared Responsibility project expenditures of the full $6.25 billion needed to maintain the existing physical plant. In terms of accommodating enrollment growth, the Shared Responsibility approach aggressively seeks alternatives to new construction for new enrollments. Whereas a "business as usual" scenario would require expenditures of $4 billion just for the capital outlay expenditures to accommodate the new students, Shared Responsibility would cost $1.3 billion, which represents *a savings of $2.7 billion*.

Summary

The *Shared Responsibility* proposal provides a realistic and balanced approach to funding the increased costs necessary to enroll future undergraduates under the Master Plan's promise of educational opportunity and high quality. The state should adopt a comprehensive approach to accommodating these students. The approach should contain the following principles:

1. *Any state policy for higher education, such as the Governor's "Compact," should include all postsecondary institutions as partners in the state's need to accommodate additional enrollments.*

The Governor's Compact as announced in 1995 did not include the community colleges or the independent institutions. A long-term policy to accommodate "Tidal Wave II" must be more comprehensive. Enrollment growth funds at the California Community Colleges should be a larger portion of the annual increase than the present, statutory factor of changes in the adult population.

TABLE 1.9

Capital Outlay Costs, 1996-2005
Business as Usual Compared to Shared Responsibility
(Dollars in Millions)

	Maintain Existing Campuses	Accommodate Enrollment Growth
Business as Usual (See Table 1.7)	**$6,250**	**$4,000***
vs		
Shared Responsibility		
Highest Priority:		
Maintain Existing Physical Plant	$6,250	
Alternatives to New Construction:		
Savings from Policy of New Construction as a Last Resort Only		($3,000)
Funds to Encourage Distance Learning and Non-Capital Approaches		$300
Total Capital Outlay Costs of Shared Responsibility	**$ 6,250**	**$1,300**

Total Capital Outlay Savings from Shared Responsibility = $2,700 million.

* This estimate is from CPEC (see Table 1.7). The current estimates from the public segments exceed this projection.

The Cal Grant program should be restructured to provide greater incentives for students to attend independent institutions.

II. To provide opportunity and quality education for these additional students, the state should adopt financing policies which are more realistic and focused.

Three sources should share in shouldering the responsibility—the state, students, and the institutions. Under the fair-share scenarios developed here, the state's total share *if all additional students enrolled in public institutions* would be a ten-year total of roughly $596 million, or an average of $59 million a year (including student financial aid, student protection against excessive fee increases, and a supplemental grant to the community colleges). While still considerable, this state contribution is far more realistic than the ten-year total of $1.2 billion, or $117 million annually (without student financial aid), which the state would be called upon to provide under *business as usual*.

It is important to remember that these costs are *in addition to all other costs*, including inflation and new programs in higher education associated with maintaining the institutions. If these maintaining costs average three percent annually for the next ten years, *another $2.2 billion will be* *required* to finance just the current system of higher education, without any enrollment growth. The state will be called on to provide a large proportion of these costs as well.

III. The state's financing policies should emphasize the priority of accommodating undergraduate students in accordance with the Master Plan's admission requirements.

This means basing calculations for the "marginal cost" rate on *expenditures for undergraduate education* according to differences among the segments. For the student fee increases necessary to support the additional demand of Tidal Wave II, the state should ensure that sufficient funds are provided to cover the increase in student financial aid.

IV. The state and higher education institutions should fundamentally change their approach to capital outlay planning for the expenditures associated with additional enrollments.

New construction in the public segments to accommodate the additional students should occur only as a last resort and under the most compelling circumstances. The existing campuses and facilities should have highest priority for maintenance, repair and remodeling before any new facilities are constructed. No new campuses should be authorized by the state through 2005-06. The new approach should stress the full use of existing capacity, serious pursuit of non-traditional delivery systems, expansion of educational hours and state supported summer sessions, and fiscal incentives to students to pursue an education in the independent sector of higher education. Fully three-fourths of the $4 billion in business as usual construction costs could be saved by these policies, and redirected to existing facilities where Californians have already invested enormous amounts to provide opportunity and quality education.

APPENDIX ONE

(Accompanying "Financing Tidal Wave II")

Full-Time-Equivalent Student Projections

This appendix presents the Center's projections of Full-Time-Equivalent Students, using CPEC's "baseline" head-count enrollment projection for *undergraduate students only*.[50] In converting head-count enrollments to FTES, the Center assumed that the 1994-95 actual ratio between these two numbers would continue through 2005-2006.

UC	1 Head Count to .9192 FTES
CSU	1 Head Count to .8241 FTES
CCC	1 Head Count to .6057 FTES

Table 1.10 on the following page displays the Center's year-by-year estimates through 2005-06, using CPEC's fall head-count projections multiplied by the FTES ratio displayed above. Although CPEC used a slightly different methodology in converting to FTES, a substantial congruity exists between both sets of projections:

Total FTES Increase Projected by the Center:	292,176
Total FTES Increase Projected by CPEC:	295,488
Difference:	1.1%

TABLE 1.10

Projections of Full-Time Equivalent Students

	Actual	*Projected*	*Projected*	*Projected*	*Projected*	*Projected*	*Projected*	*Projected*	*Projected*	*Projected*	*Projected*	*Projected*
	1994-95	**1995-96**	**1996-97**	**1997-98**	**1998-99**	**1999-00**	**2000-01**	**2001-02**	**2002-03**	**2003-03**	**2004-05**	**2005-06**
UC												
Undergrads	113,356	114,757	116,159	117,561	118,966	120,382	123,601	127,098	130,473	133,737	137,055	139,946
Change		1,401	1,402	1,402	1,406	1,416	3,218	3,498	3,375	3,264	3,318	2,891
CSU												
Undergrads	213,389	213,361	215,457	219,416	223,375	226,760	232,594	239,320	246,689	256,594	265,378	273,681
Change		-28	2,095	3,959	3,959	3,385	5,834	6,726	7,368	9,905	8,784	8,303
CCC												
Students	838,495	849,954	861,997	899,938	933,167	956,652	1,001,688	1,015,720	1,032,447	1,047,882	1,066,137	1,079,984
Change		11,459	12,043	37,941	33,230	23,485	45,036	14,032	16,727	15,434	18,255	13,848

APPENDIX TWO

(Accompanying "Financing Tidal Wave II")

Technical Notes on the Projection Methodology

Background

Two principles are central to the *Shared Responsibility* proposal for higher education finance:

- State support should be associated with the actual expenditures related to instruction, and
- Additional funds should be provided based on expenditures for undergraduate students only.

To project the costs associated with the Center's proposal, it was necessary to construct a data base on instructional and non-instructional expenditures for each of the three public segments of higher education. This appendix describes how this was done.

Past Higher Education Expenditure Studies in California

In 1993, two major studies of instructional expenditures were conducted in California, one by the California Postsecondary Education Commission and one by Dr. Paul Brinkman, a national authority on higher education finance, under the auspices of the California State University.[51]

Instructional Expenditures

Using 1989-90 expenditure data from the federal Integrated Postsecondary Education Data Systems (IPEDS), both studies calculated the amount actually spent on instruction (including general academic instruction, occupational and vocational instruction, special session instruction, community education, preparatory and adult basic education, and remedial and tutorial instruction conducted by the teaching faculty). Self-supporting extension programs were excluded, as were expenditures for health sciences, including the entire San Francisco campus of the University of California because of the uniquely high costs in this area.

Removal of Non-Instructional Research in the University's Instruction Budget

In a controversial move, CPEC also reduced instructional expenditures for the University of California *by 45.7 percent* (or by $3,952 per FTES) because the commission staff agreed with university officials that this proportion of university faculty workload could be "attributed to research and public service activities unrelated to instruction."[52] In his study, Brinkman challenged this assumption and decided to remove none of the University of California's instructional expenditures for this reason. He explained:

> Given the various estimates required, it is not clear that it is worth while to attempt to take apart reported expenditures for instruction and departmental research. This is especially true in the comparative context, since it is quite unlikely that comparable faculty activity data would be available across institutions. The most reasonable approach, for those who find it necessary to focus on instructional narrowly construed, would be to estimate the time spent on non-sponsored research and use it as the basis for deducting a portion of reported expenditures for instruction. (At the University of Utah, for example, the appropriate reduction would be around 15 to 17 percent if one assumed that none of the departmental research was relevant to instruction.)[53]

Non-Instructional Expenditures Related to Education

In calculating non-instructional costs which were part of the educational process, CPEC included expenditures for *academic support* (libraries, museums, galleries, audio-visual services, academic computing support, ancillary support, academic administration, personnel development, and course and curriculum development), for *student services* (career guidance, counseling, financial aid administration, and student health services except when operated as a self-supporting enterprise), *institutional support* (administrative services, executive direction and planning, legal and fiscal operations, and public relations and development), and *plant operations* (utilities, fire protection, property insurance, service and maintenance related to grounds and facilities used for educational and general purposes).

Appropriately, both CPEC and Brinkman made adjustments to the non-instructional expenditures to exclude a portion of funds which were associated exclusively with research and public service *unrelated to instruction*.

Once the non-instructionally related expenditures were removed, the remaining amounts in the five expenditure categories of direct instruction, academic support, student services, institutional support, and maintenance and operation of plant were added together and divided by the number of full-time equivalent students in each segment (excluding health science students for the University of California).

The Center's Higher Education Finance Data Base

The California Higher Education Policy Center has also established a data base which includes sources of income and general areas of expenditure for the three public segments and the Student Aid Commission. The data include all the major categories of revenue for the institutions which were covered by CPEC and Brinkman, with special focus on state and student support for current operations.

The Center's data base, however, does *not* include all the expenditures reported to the federal IPEDS and on which the CPEC and Brinkman reports are based. Rather, the Center's data come from official *California* documents, especially the annual *Governor's Budget* for the four-year institutions and the annual *Report of the State Controller for School Districts* and the *Fiscal Data Abstract* published by the California Community Colleges. Therefore, the Center's data base is more closely tailored to those fiscal reports directly associated with state support.

As a result of these different approaches, the three sets of data (CPEC, Brinkman and the Center) produce slightly different figures.

Comparing Expenditure Data Per FTES

Table 1.11 displays the results of per FTES expenditure calculations for each public segment from the three data sources for 1989-90, along with the ratio of instructional expenditures to overall expenditures necessary to support instruction. This display is designed to highlight the range of expenditure results among the three data bases.

TABLE 1.11

Expenditure Comparisons per FTES, 1989-90

	Direct Instructional Expenditures	Adjusted Instructional Mission Expenditures		Ratio of Direct Instructional Expenditures to Instructional Mission Expenditures
California State University				
CPEC	$4,538	$7,386		0.614
Brinkman	$4,217	$6,998		0.603
Policy Center Data Base	$4,194	$7,017		0.598
	Direct Instructional Expenditures	Adjusted Instructional Mission Expenditures*	General Operations Expenditures	Ratio of Direct Instructional Expenditures to Instructional Mission Expenditures
University of California				
CPEC (excludes UCSF)	$4,695	$8,489	$13,989	0.553
Brinkman (excludes UCSF)	$9,170	$15,078	Not Calculated	0.608
Policy Center Data Base	$6,315	Not Calculated	$15,576	N/A
	Reported Instructional Expenditures	Adjusted Instructional Mission Expenditures	General Operations Expenditures	Ratio of Reported Instructional Expenditures to Instructional Mission Expenditures
Community Colleges				
CPEC	Not part of study	Not part of study	Not part of study	
Brinkman	Not part of study	Not part of study	Not part of study	
Policy Center Data Base	$1,714	$2,801 (Current Exp. of Educ.)	$3,543 (Total Inc. Per FTES)	0.611

*For UC, Brinkman calls this "the Full Cost of Instruction" (p. 11).

CPEC Explanation of Categories:

Reported Instructional Expenditures: Total instructional expenditures as reported to IPEDS.

Direct Instruction Expenditures: Reported instructional expenditures reduced by 45.7 percent for research and public service expenditures in the instruction and departmental research category which are assumed to have no relationship to instruction and so should be excluded in "instructional mission" calculations.

Adjusted Instructional Mission Expenditures: An amount equal to the sum of instructional and a share of support expenditures, including a portion of student services, academic and institutional support, and maintenance and operation of plant, less overhead for organized research and public service.

General Operations Expenditures: The sum of Reported Instructional Expenditures and student services, plus an amount equal to total academic and institutional support, and maintenance and operation of plant, less overhead for organized research and public service.

Source: CPEC, *Expenditures for University Instruction*, pp. 80-81.

Crucial Gaps in the Past Expenditure Studies

Unfortunately, neither CPEC nor Brinkman attempted to calculate (a) per student costs for the community colleges nor (b) the expenditures for UC and CSU by level of instruction (i.e., lower division, upper division, graduate). The second gap is especially unfortunate because the cost differentials among the levels of instruction are, by any calculation, quite large.

Because such differentials by level are important to the Center's finance proposal, we had to quantify their size for the University of California and the California State University. Since data derived directly from these segments by level has not been published, researchers have to rely on the results of studies conducted around the nation about cost differentials by level of student in institutions similar to those in California.

The best summary of research into cost differentials by level of student, ironically enough, appears in an article by Paul Brinkman in *Journal of Education Finance*.[54] Brinkman's conclusions about cost ratios are presented in Table 1.12, which presents several ratios to ensure that the one most appropriate for California's two public segments of higher education can be chosen. Although some overlap between categories exists, Brinkman's identification of the cost ratios for "comprehensive universities" appears generally appropriate for the California State University, and the category "Doctoral and Research Universities" appears generally appropriate for the University of California. However, after reviewing other studies on these issues and with general reference to the expenditure patterns in California, we decided to adjust Brinkman's cost differentials slightly for both segments. Table 1.13 displays those adjustments.

TABLE 1.12

Various Studies of Cost Ratios per Student Credit Hour By Level of Instruction

(Instructional Expenses Only)

	Lower Division	*Upper Division*	*Graduate/ Professional*	*Comments*	*Applicability to California*
June O'Neill[a] (Ratios Also Used by Skoro and Hryvniak[b])	1.00	1.50	3.75	Includes capital costs, per credit hour	
Howard Bowen[c]	1.00	1.50	3.00	Excludes capital costs, per credit hour	
Paul Brinkman Comprehensive Universities (through MA)	1.00	1.57	2.80	Masters level only	**CSU**
Paul Brinkman Doctoral and Research Universities	0.50	0.80	1.00	Inverse of Formula	
Master's	1.00	1.76	3.61	Masters level only—direct costs, excludes capital	
Doctoral	1.00	1.76	4.78	Doctoral level only—direct costs, excludes capital	**Most UC Campuses**

[a] See June O'Neill, *Resource Use in Higher Education*. Berkeley (Carnegie Commission on Higher Education, 1971).

[b] See C.L. Skoro and G. Hryvniak, "The Productivity of U.S. Higher Education, 1967-1977," *Research in Higher Education* 13 (1980), pp. 147-87.

[c] See Howard Bowen, *The Costs of Higher Education* (San Francisco: Jossey-Bass, Inc., 1980).

Source: Brinkman, "Instructional Costs per Student Credit Hour," pp. 40-48.

TABLE 1.13

Cost Differentials by Level of Instruction for CSU and UC

	Lower Division	*Upper Division*	*Grad/ Prof.*	*Comments*
Brinkman Comprehensive Universities	1.00	1.57	2.80	Masters level only
Adjustment for CSU	1.00	1.60	2.00	Lower cost differential between grad and undergrad instruction exists in CSU than nationally
Brinkman Doctoral and Research Universities				
Masters	1.00	1.76	3.61	Masters level only
Doctoral	1.00	1.76	4.78	Doctoral level only
Adjustment for UC Average of both Masters and Doctoral	1.00	1.76	4.20	Average of Brinkman's two categories is a better reflection of diversity of UC

The differentials in Table 1.13 were then applied to the 1994-95 expenditure data as reported in the *Governor's Budget* (January 1995) and updated slightly in fall 1995 in order to determine an estimated cost of instruction for undergraduate students.

Expenditure Calculations for the University of California

The expenditure calculations for the University of California that are shown in Table 1.14 are based on the 1994-95 level of total general fund expenditures for instruction and departmental research at UC ($1,102,247,000).

TABLE 1.14

Instruction and Departmental Research Expenditures for UC, 1994-95

	FTES	*Assumed Weights*	*Weighted Instructional Expenditures*	*Weighted per FTES Expenditures*
Lower Division	44,213	1.00	$147,149,228	$3,328
Upper Division	69,656	1.76	$414,217,772	$5,991
Graduate/Professional*	38,181	4.20	$540,879,999	$13,978

*This calculation includes health science students.

If lower division and upper division FTES are calculated together and divided by the number of undergraduate FTES, the University of California's 1994/95 estimated instructional expenditures per FTES is $4,952. We believe it reasonable, though, to reduce this figure by some amount, in accordance with CPEC's conclusion that some proportion of these expenditures for instruction and departmental research are for strictly non-instructional activities. But by how much?

A comprehensive study by the American Council on Education in 1993 on how professors spent their time found that faculty members at four-year institutions devoted 57 percent of their hours to instruction, 17 percent to research, 12 percent to administrative duties, 6 percent to public service, 5 percent to professional growth, and 3 percent to consulting.[55] This data and Dr. Brinkman's own conclusion about non-instructional research at the University of Utah led us to conclude that a 20 percent reduction to reported instructional expenditures is more appropriate than the large 45.7 percent applied by CPEC.

Therefore, the Center's methodology assumes the instructional expenditures *for undergraduates* at the University of California in 1994-95 is *$3,962 per FTES.*

The methodology next establishes the non-instructional expenditures for 1994-95. In making this calculation, we first examined the 1993 studies described in Table 1.11. The CPEC ratio of instructional to total instructional expenditures (0.553) contained the assumptions closest to the Center's approach, and so we assumed that the 1994-95 non-instructional expenditures bore the same ratio to total expenditures as they did in the CPEC data for 1989-90. Using this assumption, we calculate 1994/95 non-instructional expenditures for UC undergraduates at *$3,202 per FTES.*

Expenditure Calculations for the California State University

The expenditure calculations for the California State University that are shown in Table 1.15 are based on the 1994-95 level of total general fund expenditures for instruction at CSU ($1,115,130,000).

TABLE 1.15

Instructional Expenditures for CSU, 1994-95

	FTES	*Assumed Weights*	*Weighted Instructional Expenditures*	*Weighted per FTES Expenditures*
Lower Division	59,352	1.0	$177,317,935	$2,988
Upper Division	154,037	1.6	$736,312,783	$4,780
Graduate/Professional	33,723	2.0	$201,499,282	$5,975

If CSU lower division and upper division instructional expenditures are calculated together and divided by the number of undergraduate FTES at CSU, the California State University's 1994-95 estimated instructional expenditures per FTES is *$4,282*. Since neither CPEC nor the state university applied any reduction to this figure for non-instructional research and public service, the Center's methodology will use this amount at the instructional expenditures per FTES in CSU.

As with UC, the Center's methodology turned to establish the non-instructional expenditures for CSU in 1994-95. We first examined the 1993 studies described in Table 1.11. To ensure consistency with UC, we used the CPEC ratio of instructional to total expenditures (0.614) for CSU. We then assumed that the 1994-95 non-instructional expenditures at CSU bore the same ratio to total expenditures as they did in the CPEC data for 1989/90. Using this assumption, we calculate 1994-95 non-instructional expenditures for CSU undergraduates at *$2,692 per FTES*.

Expenditure Calculations for the California Community Colleges

Since California's public two-year colleges do not enroll graduate students, the weighting of enrollments used for the four-year institutions is unnecessary here. All of the instructional expenditures for the Community Colleges, then, are included in the projection methodology. The Chancellor's Office reports that $1,501,077,124 was spent on instruction during 1994-95.[56] Dividing this by the Legislative Analyst's report of 854,628 FTES in 1994/95 yields an instructional expenditure of *$1,756 per FTES* in the community colleges.

The Chancellor's Office reports the 1994-95 Current Expense of Education (CEE) was $2,476,793,016.[57] We believe this is the best total figure for determining amounts for educational and general expenses in the two-year colleges.[58] Dividing CEE by FTES, we determined that the 1994-95 average cost per FTES at $2,898. Subtracting instructional expenditures ($1,756 per FTE) from this CEE per FTES expenditure ($2,898) yields an estimate of *$1,142 per FTES* as the non-instructional average at the community colleges in 1994-95. These estimated amounts will be used throughout the methodology calculations.

A Final Note on Methodology: Projections of Non-instructional Expenditures Used in the Shared Responsibility Proposal

In computing the projections for the Center's finance proposal, we assumed the following:

Instructional Expenditures should be in the amount of the Instructional Expenditures per FTES in 1994-95 for each segment. These amounts were multiplied by the number of additional FTE students per year through 2005-06.

Non-Instructional Expenditures are calculated in an amount equal to one half of the non-instructional expenditures in 1994-95 for each segment in the projections through 2005-06. This accords with the well-established principle in higher education finance that the "marginal cost" of providing access for additional students is less than the average cost for all students in non-instructional areas. To be sure, the amount of one-half is arbitrary, but is generally in line with findings in the leading cost studies when enrollment increases exceed 10 percent.[59]

APPENDIX THREE: TABLE 1.16

Projection of Expenditures under Shared Responsibility Proposal

Public Segments of Higher Education

	1994/95 Estimated Totals	1996/97 Increase	1997/98 Increase	1998/99 Increase	1999/2000 Increase	2000/2001 Increase	2001/02 Increase	2002/03 Increase	2003/04 Increase	2004/05 Increase	2005/06 Increase	Totals for All Students 1996-2005
PROJECTIONS FOR THE CALIFORNIA COMMUNITY COLLEGES												
Full-Time Equivalent Students*	854,628	878,582	917,253	951,122	975,058	1,020,961	1,035,263	1,052,312	1,068,043	1,086,650	1,100,764	N/A
Annual Change		12,043	37,941	33,230	23,485	45,036	14,032	16,727	15,434	18,255	13,848	230,030
Ratio of Headcount to FTES	0.6271											
Projected Instructional Expenditures	$1,756 Average	$21,559,351	$67,921,387	$59,488,047	$42,042,082	$80,624,160	$25,120,394	$29,944,416	$27,630,637	$32,680,312	$24,790,335	$411,801,121
Projected Non-Instructional Expenditures at 50% Rate (See methodology for projections)	$1,142 Full Average	$7,006,902	$22,074,807	$19,333,928	$13,663,897	$26,203,275	$8,164,260	$9,732,093	$8,980,102	$10,621,273	$8,056,989	$133,837,526
		Note: 50% of Full Amount Used Throughout Projection——> Projected Annual Increase Required According to Methodology in Appendix 2——>										
Total Annual Expenditures with Both Instructional and Non-Instructional Combined (Current Expense of Education)	**$2,898** Full Average	**$28,566,254**	**$89,996,194**	**$78,821,975**	**$55,705,979**	**$106,827,435**	**$33,284,654**	**$39,676,509**	**$36,610,739**	**$43,301,585**	**$32,847,324**	**$545,638,647**
Total Students Share of Cost Increase (without SFA)	N/A	$9,521,132	$29,995,731	$26,271,364	$18,566,803	$35,605,584	$11,093,775	$13,224,180	$12,202,359	$14,432,418	$10,948,013	$181,861,361
Total Institutional Contribution	N/A	$9,521,132	$29,995,731	$26,271,364	$18,566,803	$35,605,584	$11,093,775	$13,224,180	$12,202,359	$14,432,418	$10,948,013	$181,861,361
Total Unadjusted State's Share of Cost Increase (includes SFA & any amount above 3% annual Student Fee Cap)	N/A	$12,377,472	$57,960,118	$48,643,673	$30,264,402	$59,212,721	$14,421,908	$17,191,435	$15,863,067	$18,762,144	$14,232,417	$288,929,356
State Supplementary Appropriation for Growth and Transfer		$10,000,000	$10,000,000	$10,000,000	$10,000,000	$10,000,000	$10,000,000	$10,000,000	$10,000,000	$10,000,000	$10,000,000	$100,000,000
Total State Contribution for Growth and Supplementary		$22,377,472	$67,960,118	$58,643,673	$40,264,402	$69,212,721	$24,421,908	$27,191,435	$25,863,067	$28,762,144	$24,232,417	$388,929,356
Calculation of Annual Student Fee Increase Cap												
Annual Per FTES Increase in Fees Required by 1/3 Methodology		$11	$33	$28	$19	$35	$11	$13	$11	$13	$10	N/A
Percent Change in Fees Needed by 1/3 Methodology	$390	**2.78%**	**8.16%**	**6.69%**	**4.48%**	**7.85%**	**2.34%**	**2.68%**	**2.38%**	**2.70%**	**1.97%**	N/A
3% Fee Increase Would allow this annual fee increase	**Actual Per FTES**	$11.70	$12.03	$12.39	$12.76	$13.33	$13.73	$14.05	$14.43	$14.77	$15.17	N/A
Total Fees Per FTES Annually w/ 3% Cap	**Fee**	$401	$413	$425	$444	$458	$468	$481	$492	$506	$516	N/A
Total Dollars in Fee Collections Above 3% Cap		$0	$18,965,667	$14,490,900	$6,127,558	$12,925,462	$0	$0	$0	$0	$0	$52,509,586
Adjusted Student Fee Collections Imposing 3% Cap		$9,521,132	$11,030,064	$11,780,464	$12,439,245	$22,680,123	$11,093,775	$13,224,180	$12,202,359	$14,432,418	$10,948,013	$129,351,775
Unadjusted Amount of Institutional Contribution For Growth (1/3)		$9,521,132	$29,995,731	$26,271,364	$18,566,803	$35,605,584	$11,093,775	$13,224,180	$12,202,359	$14,432,418	$10,948,013	$181,861,361
Amount of General Funds w/ 3% Annual Increase *(Base = 1994/95 total of $2.721,500,000-GF's + P. Tax)*		$81,645,000	$84,094,350	$86,617,181	$89,215,696	$91,892,167	$94,648,932	$97,488,400	$100,413,052	$103,425,443	$106,528,207	$935,968,426
Unadjusted Growth Contribution as a Percent of 3% Increase		**11.66%**	**35.67%**	**30.33%**	**20.81%**	**38.75%**	**11.72%**	**13.56%**	**12.15%**	**13.95%**	**10.28%**	
Growth Contribution with State Supplement		($478,868)	$19,995,731	$16,271,364	$8,566,803	$25,605,584	$1,093,775	$3,224,180	$2,202,359	$4,432,418	$948,013	
Adjusted Growth Contribution as a Percent of 3% Increase		**-0.59%**	**23.78%**	**18.79%**	**9.60%**	**27.86%**	**1.16%**	**3.31%**	**2.19%**	**4.29%**	**0.89%**	

BEST COPY AVAILABLE

APPENDIX THREE: TABLE 1.16 *(continued)*

Projection of Expenditures under Shared Responsibility Proposal

Public Segments of Higher Education

PROJECTIONS FOR THE CALIFORNIA STATE UNIVERSITY	**1994/95 Totals**	**1996/97 Increase**	**1997/98 Increase**	**1998/99 Increase**	**1999/2000 Increase**	**2000/2001 Increase**	**2001/02 Increase**	**2002/03 Increase**	**2003/04 Increase**	**2004/05 Increase**	**2005/06 Increase**	**Totals for Undergrad Only 1996-2005**
Full Time Equivalent Students	213,389	215,457	219,416	223,375	226,760	232,594	239,320	246,689	256,594	265,378	273,681	
Annual Change		2,095	3,959	3,959	3,385	5,834	6,726	7,368	9,905	8,784	8,303	60,320
Ratio of Headcount to FTES	0.8160											
Projected Instructional Expenditures	$4,263 Actual Average	$8,932,127	$16,876,433	$16,876,433	$14,427,750	$24,869,435	$28,671,154	$31,408,531	$42,222,387	$37,443,282	$35,391,119	$257,122,913
Projected Non-Instructional Expenditures at 50% Rate	$2,680 Full Average	$2,807,656	$5,304,807	$5,304,807	$4,535,107	$7,817,265	$9,012,268	$9,872,714	$13,271,858	$11,769,631	$11,124,570	$80,823,363
(See methodology for projections)		Note: 50% of Full Amount Used Throughout Projection——> Projected Annual Increase Required According to Methodology in Appendix 2——>										
Total Annual Expenditures with Both Instructional and Non-Instructional Combined	$6,942 Full Actual Average	$11,739,783	$22,181,240	$22,181,240	$18,962,858	$32,686,700	$37,683,422	$41,281,245	$55,494,245	$49,212,913	$46,515,689	$337,946,276
Total Students Share of Cost Increase (without SFA)	N/A	$3,912,870	$7,393,007	$7,393,007	$6,320,320	$10,894,477	$12,559,885	$13,759,039	$18,496,232	$16,402,664	$15,503,679	$112,635,180
Total Institutional Contribution		$3,912,870	$7,393,007	$7,393,007	$6,320,320	$10,894,477	$12,559,885	$13,759,039	$18,496,232	$16,402,664	$15,503,679	$112,635,180
Total State's Share of Cost Increase (includes SFA & Any amount above 4% annual Student Fee Cap)	N/A	$5,086,730	$9,610,910	$9,610,910	$8,216,417	$14,162,820	$16,327,850	$17,886,751	$24,045,101	$21,323,463	$20,154,783	$146,425,734
Annual Per FTES Increase in Fees Required by 1/3 Methodology		$18	$34	$33	$28	$47	$52	$56	$72	$62	$57	N/A
Percent Change in Fees Needed by 1/3 Methodology	$1,584 Actual Per FTES Fee	**1.15%**	**2.10%**	**2.02%**	**1.67%**	**2.76%**	**3.01%**	**3.11%**	**3.89%**	**3.21%**	**2.85%**	N/A
Annual Per FTES Increase in Fees w/ 4% Cap		$79	$80	$82	$83	$85	$87	$90	$93	$96	$99	N/A
Total Fees Per FTES Annually w/ 4% Cap		$1,602	$1,636	$1,669	$1,697	$1,744	$1,796	$1,852	$1,924	$1,986	$2,042	N/A
Total Dollars in Fee Collections Above 4% Cap		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Student Fee Collections imposing 4% Cap		$3,912,870	$7,393,007	$7,393,007	$6,320,320	$10,894,477	$12,559,885	$13,759,039	$18,496,232	$16,402,664	$15,503,679	$112,635,180
Amount of Institutional Contribution For Growth (1/3)		$3,912,870	$7,393,007	$7,393,007	$6,320,320	$10,894,477	$12,559,885	$13,759,039	$18,496,232	$16,402,664	$15,503,679	$112,635,180
Amount of General Funds w/ 3% Annual Increase		$50,214,000	$51,720,420	$53,272,033	$54,870,194	$56,516,299	$58,211,788	$59,958,142	$61,756,886	$63,609,593	$65,517,881	$575,647,236
Growth Contribution as a Percent of 3% Increase		**7.79%**	**14.29%**	**13.88%**	**11.52%**	**19.28%**	**21.58%**	**22.95%**	**29.95%**	**25.79%**	**23.66%**	N/A

BEST COPY AVAILABLE

APPENDIX THREE: TABLE 1.16 *(continued)*

Projection of Expenditures under Shared Responsibility Proposal

Public Segments of Higher Education

PROJECTIONS FOR THE UNIVERSITY OF CALIFORNIA	**1994/95 Totals**	**1996/97 Increase**	**1997/98 Increase**	**1998/99 Increase**	**1999/2000 Increase**	**2000/2001 Increase**	**2001/02 Increase**	**2002/03 Increase**	**2003/04 Increase**	**2004/05 Increase**	**2005/06 Increase**	**Totals for Undergrads Only 1996-2005**
Full-Time Equivalent Students	113,356	116,159	117,561	118,966	120,382	123,601	127,098	130,473	133,737	137,055	139,946	N/A
Annual Change		1,402	1,402	1,406	1,416	3,218	3,498	3,375	3,264	3,318	2,891	25,189
Ratio of Headcount to FTES	0.9151											
Projected Instructional Expenditures	$3,962 Average	$5,554,168	$5,554,168	$5,568,669	$5,608,549	$12,750,657	$13,856,415	$13,370,607	$12,931,929	$13,145,830	$11,452,751	99,793,744
Projected Non-Instructional Expenditures at 50% Rate	$3,202	$2,244,768	$2,244,768	$2,250,629	$2,266,746	$5,153,295	$5,600,197	$5,403,853	$5,226,557	$5,313,007	$4,628,734	40,332,553
(See methodology for projections)	Full Actual Average	Note: 50% of Full Amount Used Throughout Projection →										
		Projected Annual Increase Required According to Methodology in Appendix 2 →										
Total Annual Expenditures with Both												
Instructional and Non-Instructional Combined Full Average	$7,164	$7,798,935	$7,798,935	$7,819,298	$7,875,295	$17,903,952	$19,456,612	$18,774,460	$18,158,487	$18,458,837	$16,081,486	140,126,297
Total Students Share of Cost Increase (without SFA)	N/A	$2,599,385	$2,599,385	$2,606,172	$2,624,836	$5,967,387	$6,484,889	$6,257,527	$6,052,224	$6,152,330	$5,359,959	$46,704,095
Total Institutional Contribution		$2,599,385	$2,599,385	$2,606,172	$2,624,836	$5,967,387	$6,484,889	$6,257,527	$6,052,224	$6,152,330	$5,359,959	$46,704,095
Total State's Share of Cost Increase	N/A	$3,379,201	$3,379,201	$3,388,024	$3,412,287	$7,757,603	$8,430,355	$8,134,786	$7,867,891	$7,998,030	$6,967,947	$60,715,323
(includes SFA & Any amount above 5% annual Student Fee Cap												
Annual Per FTES Increase in Fees Required by 1/3 Methodology		$22	$22	$22	$22	$48	$51	$48	$45	$45	$38	N/A
Percent Change in Fees Needed by 1/3 Methodology	$3,799	**0.59%**	**0.58%**	**0.57%**	**0.56%**	**1.24%**	**1.30%**	**1.20%**	**1.12%**	**1.10%**	**0.93%**	N/A
Annual Per FTES Increase in Fees w/ 5% Cap		$190	$191	$192	$193	$194	$197	$199	$202	$204	$206	N/A
Total Fees Per FTES Annually w/ 5% Cap		$3,821	$3,843	$3,865	$3,887	$3,935	$3,987	$4,034	$4,080	$4,125	$4,163	N/A
Total Dollars in Fee Collections Above 5% Cap		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Adjusted Fee Collections Imposing 5% Cap		$2,599,385	$2,599,385	$2,606,172	$2,624,836	$5,967,387	$6,484,889	$6,257,527	$6,052,224	$6,152,330	$5,359,959	$46,704,095
Amount of Institutional Contribution For Growth (1/3)		$2,599,385	$2,599,385	$2,606,172	$2,624,836	$5,967,387	$6,484,889	$6,257,527	$6,052,224	$6,152,330	$5,359,959	$46,704,095
Amount of General Funds w/ 3% Annual Increase		$57,531,000	$59,256,930 ·	$61,034,638	$62,865,677	$64,751,647	$66,694,197	$68,695,023	$70,755,873	$72,878,550	$75,064,906	$659,528,441
Growth Contribution as a Percent of 3% Increase		**4.52%**	**4.39%**	**4.27%**	**4.18%**	**9.22%**	**9.72%**	**9.11%**	**8.55%**	**8.44%**	**7.14%**	N/A

Note: For totals of tables in Appendix Three, See Table 1.8

BEST COPY AVAILABLE

C. Estimates of Savings from Strategies with Capital Implications

A number of the strategies in the *Shared Responsibility* report have implications for the capital budget. All of these ideas have been discussed for several years, both in California and elsewhere. We have tried to quantify the implications of these strategies for capital costs with particular emphasis on the extent to which they help to avoid the need for new construction by using existing facilities more efficiently. We are not trying to predict exactly what will happen if these alternatives are adopted, but rather to simulate the kinds of savings that could be realized. This simulation exercise asks what the individual contribution of each strategy might be. In addition, we ask if all of the strategies are pursued together, whether they will make a substantial contribution toward solving the problem of accommodating Tidal Wave II students with a minimum investment for new facilities for enrollment growth. The results are shown in tables 1.17 and 1.18.

TABLE 1.17

Increased Capacity from Individual Strategies

(Dollars in millions; Figures for Undergraduate Students Only)

	FTES	Summer Session*	Increased Use*	Upper Div.	Diver. to Pvt. Coll.	Transfer Cal Grant	Total FTE	Total Cap. Savings
UC								
Projected Growth		29,945	11,387	11,387	8,824	368	31,965	$1,601
CSU								
Projected Growth	60,888	21,550	21,550	3,000	4,945	1,319	52,363	$1,246
CCC								
Projected Growth	241,489	142,544	39,371		2,181		184,096	$800
Totals		175,481	72,307	3,000	15,950	1,686	268,424	$3,649

*For UC and CSU, we estimate that moving to year-round operation and extended week operation will increase capacity by 10%; estimates for the community colleges are drawn from the Commission on Innovation, *Reducing the Need for New Facilities.*

Note: Please refer to the note on calculations in Table 1.18 for more information.

TABLE 1.18
Capital Savings from Individual Strategies
(Figures for Undergraduate Students Only)

	Summer Session	*Increased Use*	*Upper Division*	*Diversion to Independents*	*Transfer Cal Grant*
Totals, All Public Segments	$1,703	$1,250	$71	$569	$50

Note: Calculations of capital savings are computed based on CPEC's projections of FTES growth and total capital costs associated with growth in each segment (see *Capacity for Growth*, 1994). Using these two figures, we estimate the proportion of enrollment growth each strategy could accommodate. Then we assume that the proportion of total growth accommodated in each segment equals the proportion of the total capital costs necessary to accommodate the growth in that segment. For example, if 76 percent of the community colleges' enrollment growth could be accommodated through these strategies, then we estimate a cost savings of 76 percent of the total capital costs associated with growth in that segment.

CPEC's estimate of $4 billion in capital costs to fund Tidal Wave II is based on an assumption of the need for new buildings to accommodate the enrollment growth. This is the "business as usual" estimate from which our simulations are based. The Center suggests that building new facilities can be avoided through a series of strategies that seek to make better use of the facilities we currently have. These include: year-round operation, extended week and weekend hours, offering upper division courses on selected community college campuses, and providing incentives for students to attend private institutions in order to make use of the physical capacity there.

Our estimates of savings from these strategies are based on CPEC's estimates of the total costs at each segment of accommodating Tidal Wave II. CPEC estimates a cost of $1.5 billion at UC, $1.45 billion at CSU, and $1.05 billion at the community colleges to accommodate enrollment growth.[60] We estimate the proportion of enrollment growth that could be accommodated by each strategy and then use CPEC's figures to estimate the associated capital savings. As a result, we estimate that these various strategies could result in capital savings of approximately $3.67 billion (see Table 1.17). Of course, there are costs, both operating and capital, associated with many of these strategies. We estimate an additional maintenance cost of approximately $49 million associated with those strategies that extend use of public facilities (as described at the end of this section). The additional state support required to fund these additional enrollments is included in the Shared Responsibility approach.

Year-Round Operation

Currently, among the four-year public institutions, only four of the CSU campuses have state supported summer sessions. Enrollments and course offerings at non-state-supported summer sessions are much lower than during the regular year terms. While state funding is provided for summer terms at the community colleges, most colleges limit their summer offerings. By adding a state-supported summer term at several of the four-year institutions we estimate an increase in capacity of ten percent at UC and CSU. By encouraging the community colleges to make more extensive use of their facilities during the summer, we use the assumption of the Commission on Innovation of an increase in capacity of seventeen percent.[61]

Extended Week Operations
By extending hours of operation to weekends and by increasing the number of classes scheduled to make better use of afternoons and evenings, additional students can be accommodated in each of the public segments without additional new construction. We estimate an increase in capacity of ten percent at UC and CSU; for the community colleges, we use the assumption of the Commission on Innovation of accommodating 13 percent of the projected increase in weekly student contact hours (where average weekly student head-count hour was 7.73 per head-count student).

Upper Division Courses on Community College Campuses
Upper division courses leading to the baccalaureate degree could be offered on many community college campuses at great convenience to students and savings of capital outlay dollars for new facilities at four-year institutions. We estimate that by experimenting with offering such courses at community colleges, where space is available and where the nearby four-year institutions have no available space, approximately 3,000 CSU FTES could be accommodated on community college campuses.

Diversion of students to the Independents through changes in the Cal Grant
By supporting the state student financial aid program, Cal Grant, at levels that will facilitate student choice of private institutions, we can reduce the pressure for construction of new public facilities. We use the estimates of the AICCU that would encourage approximately 19,200 students to attend the independent institutions when they would have otherwise attended a public institution. When fully implemented, we assume the following distribution: 9,600 from UC, 6,000 from CSU and 3,600 from the community colleges (converted to FTES, this is 8,824 at UC, 4,945 at CSU and 2,181 at the community colleges). See Strategy Three for further discussion of expanding the Cal Grant.

Transfer Grant for Students Attending Independents
We estimate that this pilot program (a $1,000 grant for students who complete two years at a community college and transfer to an independent institution) will encourage an additional 2,000 students to transfer from community colleges to the independent institutions rather than to UC or CSU. When fully implemented, we assume that 400 students who otherwise would have attended UC and 1600 who otherwise would have attended CSU would transfer to the independents. (Converted to FTES, this represents 368 from UC and 1,319 from CSU). See Strategy Three for further discussion of the proposed transfer grant.

Estimating the Operating Costs Needed to Extend the Instruction Week and Offer a Full Summer Session

Extending the hours of operation throughout the week and into the summer for public institutions will require that certain costs will increase and must be covered. How much will these costs be?

The costs required for the instruction of additional students during these times is covered in the Shared Responsibility's proposal for financing each segment (see "Financing Tidal Wave II," Appendix 3, Table 1.16). Likewise the provision of one-half of the non-instructional costs per student should be adequate to support the range of non-instructional activity (student services, libraries, media centers, and administration) necessary for extending the week and offering a regular program during the summer.

In addition to these costs, however, the operation and maintenance budgets will be affected due to increased utilities costs and custodial/maintenance care for the facilities under conditions of greater use. We estimate that an increase of 7 percent for physical plant expenditures will adequately cover these additional, facilities-related expenditures. Accordingly, an additional $50 million should be spread among all three segments to cover the annual costs needed for more intensive use of facilities, as shown in Table 1.19.

TABLE 1.19

Estimated Expenditures for Plant Operation and Maintenance (1994-95), For Extending the Instructional Week, and for Offering a Full Summer Session

University of California	$230,000,000
California State University	$175,000,000
California Community Colleges	$295,000,000
Total Expenditures for Plant Operation/Maintenance, 1994/95	$700,000,000
Expenditures Needed to Extend the Week and Offer a Full Summer Session (7% Beyond 1994-95 Expenditures)	$49,000,000

D. Examples of Programs Providing Upper-Division Courses on Community College Campuses

1. Teletechnet at Virginia's Community Colleges

The State of Virginia is moving toward the increased use of distance learning to enable 13 community colleges to more broadly offer lower and upper-division, college-level courses. Old Dominion, one of Virginia's public four-year institutions, has developed Teletechnet, a KU-band satellite system in which each distance site has a local area network connected to the main campus. Through this technology, as well as voice computer connectivity and electronic mail, students with the equivalent of an associate degree can continue studying at their local community college and ultimately receive one of twelve baccalaureate degrees from Old Dominion University. Bachelor's degrees are offered in: business administration management, civil engineering technology, computer engineering technology, criminal justice, electrical engineering technology, health sciences health care management, human services counseling, interdisciplinary studies, nursing, middle school education (math and science) and mechanical engineering technology. Masters degrees are offered in curriculum and instruction and special education.

Site directors, employed by Old Dominion, work at the community colleges to provide a variety of student services including registration, financial aid, advising, testing, program auditing, and access to course materials. The annual cost of educating students through Teletechnet is $800 less than the average on-campus cost for state-supported doctoral institutions. The university anticipates that the average cost of educating at Teletechnet will be reduced by as much as one-half when increased student enrollment and the purchase of capital equipment reduces the marginal cost of operation.

Examining the demographic nature of students utilizing Teletechnet, it is clear that students are older and more likely to be employed full-time than the average undergraduate student at Old Dominion. Specifically, the average student is 34 years old. With 62 percent of Teletechnet students working more than 40 hours per week, the average course load with Old Dominion University is 2.2 courses per semester. A retention rate of 96 percent was realized between fall 1994 and spring 1995, with a 94 percent rate of retention between spring 1995 and fall 1995. This comparably high retention rate may be attributed to the accessibility of Teletechnet courses offered in the evenings on Saturdays when students are more likely to attend.

Teletechnet will provide bachelor's degrees for 5,000 students at 16 community colleges across

Virginia in 1995-96. It is projected that Teletechnet could serve almost 20 percent of the additional 65,000 expected to enter the commonwealth's colleges and universities by the year 2000. With Teletechnet to claim that it can increase access to college degrees without the construction of new classroom buildings and dormitories, the program enjoys a high level of political and financial support from the Virginia General Assembly and its governor, George F. Allen. Despite the tight budget conditions of 1994-95, the General Assembly approved $3.6 million for Teletechnet. This appropriation was increased slightly for academic year 1995-96, to $3.8 million.

Contact: Office of Academic Affairs, Old Dominion University, 222 New Administration Building, Norfolk, VA 23529.

2. Utah's University Centers

The State of Utah sponsors university centers to provide baccalaureate degree programs of *high market and student demand* on community college campuses.[62] The centers were established in 1992 at each of the five community colleges in Utah as a cost-effective means for providing baccalaureate degrees beyond existing university campuses.[63] The centers are intended to serve local students whose employment, family, or economic factors prevent relocation to attend an established four-year institution.

Any of the four public four-year institutions may sponsor one or more academic programs at a community college. The sponsoring four-year university is responsible for offering courses, hiring faculty, evaluating course content and quality, and awarding credits and degrees. The content of courses offered through the university centers, as well as the requirements for baccalaureate degrees are comparable to those at the sponsoring institutions. Admissions requirements, which are also set by the four-year institution, vary by academic program but must meet certain minimum standards. Students attending Utah's community colleges are carefully advised of these minimum standards as well as other admissions policies to assure smooth matriculation between the two-year and four-year degree programs.

Students enrolled at a university center are charged the same tuition rate as regular students enrolled at the sponsoring university. The university rebates to the community college an amount equal to the regular community college student fees, and retains excess fees. Students also pay a special university center fee established by the community college. Students interested in securing financial aid are advised to complete their associate degree before entering a university center program to avoid costly and cumbersome inter-institutional financial aid agreements.

To establish the university centers as a high priority, the Utah Board of Regents' budget formula provides upper-division student enrollments in university center programs with state FTE funding. Also, enrollments in center programs are excluded from the enrollment management strategy targets adopted by the Board of Regents.

During the 1996 winter quarter, 78 students attended Utah State University through a university center, and 100 students attended Weber State University through a university center.

The Utah Valley State College (UVSC) provides an example of a community college offering baccalaureate degrees at its site. The college, originally an associate-degree-granting institution, now offers baccalaureate degrees sponsored by the University of Utah and Weber State in technology management, computer science, information systems, accounting, general business, international business, marketing, hospitality management, and elementary education. The baccalaureate degree in technology management is the best example of a university center's market-driven response to the projected economic growth of the region, according to a coordinator of the center at UVSC. Student demand is also high for the elementary education program at UVSC. In spring quarter 1996, over 300 students have indicated an intent to transfer into the baccalaureate program.

Contact: Marilyn Mansfield, Assistant to the VP for Off-Campus Student Services, Utah Valley State College, 800 West 1200 South, Orem, UT 84058-5999; 801-222-8329.

3. Residence Centers in Missouri

In the fall of 1994, the University of Missouri at St. Louis (UMSL) developed residence centers at community college campuses in Jefferson and St. Charles counties. The residence centers provide opportunities to earn baccalaureate degrees to students who cannot, or will not, travel to the campus. The centers were adopted in response to empirical needs assessments conducted by MGT of America, Inc. which indicated that demand was sufficient for expanding the capacity of existing community colleges.

Students apply to the University of Missouri and if accepted, are provided with academic coursework and support services that are comparable to those provided on the St. Louis campus, except that the disciplines selected for the residence centers have minimal laboratory requirements. Instruction is provided by a mix of regular UMSL faculty and adjunct faculty. On-site student support services include on-line registration through the community college computer center, testing, advising, financial aid, book sales, library, and administrative support. Students at the residence centers pay the same educational and special fees as students at the main campus.

The Residence Center at St. Charles County Community College
MGT of America interviewed over 1,000 residents of St. Charles, Lincoln, and Warren counties and studied census and demographic data regarding education levels and participation rates in the targeted area. Their study concluded that the area's college participation rate of 13 percent was 3 percent below the Missouri average of 16 percent and a 5 percent below the St. Louis County average of 18 percent. Based on their interviews, MGT learned that 84 percent of the residents in St. Charles, Lincoln, and Warren counties felt that the University of Missouri at St. Louis should offer programs and courses in St. Charles County. In response to MGT's findings and recommendations, UMSL began offering their existing undergraduate degree programs in business administration, communications, criminology and criminal justice, elementary and secondary education, engineering, fine arts, nursing, and social work at the St. Charles County Community College. In its first year of operation, the residence center was appropriated $154,000. For academic year 1995-96, $105,000 was appropriated due to reduced marketing expenses.

The St. Charles Residence Center serves a predominantly Caucasian, non-traditional student. Only 2 percent of the residence center participants in St. Charles County were from an ethnically underrepresented group in fall 1995. In that same term, 76 percent of all students were over age 25, 76 percent were married, 61 percent had at least one child, and 49 percent were employed full-time. To date, the resident center at St. Charles County has served 372 students.

In a fall 1995 evaluation of the program, strong student support was found for providing baccalaureate opportunities at the community college. Eighty-four percent of all students at St. Charles County Residence Center participated in the survey, which found that 100 percent of those students said they would take another course from UMSL in St. Charles County again. Over

80 percent of students indicated that convenience, location, and time of course instruction were the most important factors in their decision to enroll. Many students expressed a desire for longer and more upper-division courses, commenting that the program was a more accessible means to continue work toward their degrees.

The Residence Center at Jefferson County Community College

MGT of America interviewed over 1,000 residents of Jefferson and Franklin Counties and studied census and demographic data regarding education levels and participation rates in the targeted area. The findings of their study concluded that the college participation rate of Jefferson and Franklin counties was 13 percent in 1990, 3 percent below the Missouri average of 16 percent and 5 percent below the St. Louis County 18 percent average. Based on their interviews, MGT learned that 56 percent of the residents in Jefferson and Franklin counties felt that the University of Missouri at St. Louis should offer programs and courses in Jefferson County. In response to MGT's findings and recommendations, UMSL began offering their existing undergraduate degree programs in business administration, elementary and secondary education, engineering, nursing, and arts and sciences at the Jefferson County Community College. In its first year of operation, 1995-96, the residence center at Jefferson County was appropriated $51,000.

The Jefferson County Residence Center also serves a predominantly Caucasian, nontraditional student. Only 2 percent of the Residence Center participants in Jefferson County were from an ethnically underrepresented group in fall 1995. In that same term, 78 percent of all students were over age 25, 52 percent were married, 35 percent had at least one child, and 52 percent were employed full-time. To date, the program has served 104 students.

In a fall 1995 evaluation of the program, strong student support was found for providing baccalaureate opportunities at the community college. Four out of five participants of the Jefferson County Residence Center indicated that they would take another course from UMSL again. Over 80 percent of students indicated that convenience, location, and time of course instruction were the most important factors in their decision to enroll. Many students expressed that the area badly needed a four-year program offered in the area.

Contact: Paul S. DeGregorio, Director, Outreach Development, University of Missouri-St. Louis, 440 Woods Hall, 8001 Natural Bridge Road, St. Louis, MO 63121-4499; 314-516-6179.

4. California State University, Stanislaus

In 1974, California State University, Stanislaus, began offering courses at the Stockton Center on the San Joaquin Delta Community College campus. The Stockton Center is leased by Cal State Stanislaus in an effort to make available degree programs on the San Joaquin Delta Community College campus.

At this center, approximately 90 to 100 courses are offered each semester, and about 650 students enroll in these courses each semester. Currently, about 50 percent of the students who take courses at the center are transfers from San Joaquin Delta Community College, and this number is increasing each year. It is estimated that about 300 students begin taking courses at San Joaquin Delta Community College and finish their degree from Cal State Stanislaus without ever leaving campus.

Only upper-division courses for juniors and seniors are available at this on-site campus center. There are approximately seven undergraduate degrees offered in the arts and sciences, plus three masters, and two credential programs available. Presently, Cal State Stanislaus employs six resident faculty full-time to teach these courses, with other faculty commuting from the Stanislaus campus. Two-thirds of these courses at the on-site center are taught by instructors; one-third is taught through distance learning, either by two-way or one-way satellite.

Contact: Pam Craft, Stockton Center, San Joaquin Delta Community College, 5151 Pacific Avenue, Stockton, CA 95207-6370; 209-474-5780.

5. Santa Monica College

Santa Monica College, a community college, has teamed up with California State University at Northridge to offer a bachelor of science degree in business administration. The partnership, among the first of its kind in California, allows students who are enrolled in the Northridge business program to take "core curriculum" classes at the Santa Monica College campus, 20 miles away.

Students must complete all requirements and be accepted to Cal State Northridge in order to be able to take these courses from Santa Monica College. Students pay tuition to Cal State Northridge, and Northridge gets FTE credit for the Santa Monica College students enrolled in this degree program.

This program, which began last fall, currently enrolls about 29 students. Last fall, the enrollment for this joint program was 32 students. Geared toward older students, Santa Monica College offers a maximum of six courses per year. Students requiring more full-time study would take classes at the Northridge campus.

Santa Monica College will be offering two five-week summer sessions this summer and plans to offer four courses this fall. An evaluation of this partnership is scheduled for fall 1996.

Contact: Norma J. Camp, Associate Dean, Academic Support, Santa Monica College, 1900 Pico Boulevard, Santa Monica, CA 90405-1628; 310-452-9207.

Endnotes for Strategies One and Two

[1] Michael Shires, "The Master Plan Revisited (Again): Prospects for Providing Access to Public Higher Education in California: A Briefing for the Enrollment Panel," San Francisco, Public Policy Institute of California, July 7, 1995.

[2] "America's Best Colleges: News You Can Use," *U.S. News and World Report*, May 1995.

[3] *Analysis of the 1993-94 Budget Bill* (Sacramento: Office of the Legislative Analyst, February 1993), pp. F-5 to F-7.

[4] Ibid., p. F-67.

[5] California Governor's Office, *Governor's Budget Summary for 1995-96* (Sacramento: The Department of Finance, 1995), p. 43.

[6] Ibid., p. 139.

[7] Ibid., p. 44.

[8] Ibid.

[9] Ibid., p. 139.

[10] Ibid., p. 45.

[11] Ibid.

[12] Chancellor's Office of the California Community Colleges, *Fiscal Data Abstract for 1994-95* (Sacramento: 1996), p. 39.

[13] California Student Aid Commission, *Grant Program Statistics, Academic Year 1994-95* (no publication date), p. 7.

[14] *Governor's Budget Summary for 1995-96*, p. 145.

[15] California Governor's Office, *Governor's Budget Summary for 1996-97* (Sacramento: The Department of Finance, 1996), p. 21.

[16] Ibid., p. 95.

[17] See *Higher Education at the Crossroads: Planning for the Twenty-First Century*, Commission Report 90-1 (Sacramento: California Postsecondary Education Commission, 1990), p. 50; and *The Uncertain Partnership: A Study of the Financial Condition of California's Independent Colleges and Universities* (Sacramento: Association of Independent California Colleges and Universities, May 1995), p. 85.

[18] *Analysis of the 1996-97 Budget Bill* (Sacramento: Office of the Legislative Analyst, February 1996), p. F-64.

[19] David W. Breneman, Leobardo F. Estrada, and Gerald C. Hayward, *Tidal Wave II: An Evaluation of Enrollment Projections for California Higher Education* (San Jose: California Higher Education Policy Center, September, 1995).

[20] University of California, Office of the President, *1996-97 Budget for Current Operations—Proposal* (Oakland: October 1995).

[21] California State University, Office of the Chancellor, "Chancellor's Budget Message: 1996-97 Support Budget" (no page number provided).

[22] Michael G. Dolence and Donald M. Norris, *Transforming Higher Education: A Vision for Learning in the 21st Century* (Ann Arbor: Society for College and University Planning, 1995).

[23] *A Capacity for Growth: Enrollments, Resources, and Facilities for California Higher Education, 1993-94 to 2005-06* (Sacramento: California Postsecondary Education Commission, 1995), p. 67. See also William Storey, "Creating Space Standards: The California Solution," in *Planning for Higher Education*, vol. 20 (Fall 1991), pp. 29-37.

[24] William F. Massy and Robert Zemsky, *Using Information Technology to Enhance Academic Productivity* (Washington D.C.: Educom, 1995).

[25] *Analysis of the 1996-97 Budget Bill*, p. I-17.

[26] *A Capacity for Growth*, p. 98.

[27] Ibid.

[28] CSU Chancellor's Office, "Capital Outlay Program 1996-97," p. 2.

[29] UC President's Office, "Capital Improvements 1996-97," p. 6.

[30] These quotations present the interpretation of salary "lag" by the four-year institutions. The methodology for determining this "lag" has been questioned by the Legislative Analyst (*Analysis of the 1995/96 Budget Bill*, pp. F-22 to F27), and the Legislature asked CPEC to study the matter (see CPEC, *Expenditures for University Instruction: A Report to*

the Governor and Legislature in Response to Supplemental Report Language for the 1991 Budget Act. Report #93-6, p. 29). Regardless of the magnitude of this "lag," however, a priority to keep California salaries competitive with comparison institutions will likely continue in the future.

[31] UC Office of the President, *1996-97 Budget for Current Operations* [Proposal], p. 153.

[32] CSU Chancellor's Office, p. 23.

[33] UC President's Office, *1996-97 Budget*, p. 7

[34] CSU Chancellor's Office, p. 16.

[35] Office of the Legislative Analyst, *Analysis of the 1995/96 Budget Bill*, p. F-70.

[36] Office of the Legislative Analyst, *Analysis of the 1994/95 Budget Bill*, p. F-62.

[37] National Association of College and University Business Officers (NACUBO), *Managing the Facilities Portfolio: A Practical Approach to Institutional Facility Renewal and Deferred Maintenance* (Washington, D.C.: 1991), pp. 73-74.

[38] CPEC, Legislative and Budget Update for August 1995," Commission Agenda Item 12, August 27-28, 1995, p. 16.

[39] RAND Corporation, Institute on Education and Training, "Does California's Fiscal Future Bode Ill for Education? A Policy Brief," San Francisco, January 1996, p. 2.

[40] CPEC, *A Capacity for Growth*, p. 10.

[41] CPEC, "Closing the Door . . . Needed Facilities for California's Colleges and Universities: A Report by the Executive Director Warren H. Fox," Report 95-15, Sacramento, October 1995, cover page.

[42] Paul T. Brinkman and Larry L. Leslie, "Economies of Scale in Higher Education: Sixty Years of Research," in *The Review of Higher Education*, Vol. 10, No. 1 (Fall 1986), pp. 1-28.

[43] Commission on Innovation [California Community Colleges], *Technical and Cost Assumptions for the Implementation of the Commission on Innovation's Action Agenda*, prepared by BW Associates (Berkeley: January 1994), p. 31.

[44] CPEC, "A Fresh Look at California Postsecondary Education: Shaping Education Beyond the High School in California for the Twenty-First Century," Sacramento, December 11, 1994 Draft, p. 14.

[45] *Analysis of the 1996/97 Budget Bill*, pp. F-14, F-22.

[46] Association of Independent California Colleges and Universities, *The Uncertain Partnership*, p. 87.

[47] CPEC, *Higher Education at the Crossroads*, p. 50.

[48] *Analysis of the 1996/97 Budget Bill*, pp. F-64.

[49] CPEC, *A Capacity for Growth*, pp. 90-93.

[50] Ibid., pp. 30, 49, 62.

[51] See CPEC, *Expenditures for University Instruction*, 1993, and Paul Brinkman's unpublished review of the CPEC *Expenditures* report, *"The Costs of Public Higher Education in California,"* distributed by CSU, 1993.

[52] CPEC, *Expenditures for University Instruction*, p. 16.

[53] Brinkman's unpublished review of CPEC's Expenditures Report, pp. 11-12.

[54] Paul Brinkman, "Instructional Costs per Student Credit Hour: Differences by Level of Instruction," *Journal of Education Finance* 15 (Summer, 1989), pp. 34-52.

[55] American Council on Education, "Higher Education and National Affairs," Vol. 45, Number 4 (February 19, 1996), p. 5.

[56] *Fiscal Data Abstract*.

[57] Ibid.

[58] For a complete explanation of why Current Expense of Education is the best statistic for this purpose, see the explanation in Table One in William Pickens, *Financing the Plan: California's Master Plan for Higher Education, 1960 to 1994* (San Jose: The California Higher Education Policy Center, 1995), p. 6.

[59] See Paul Brinkman and Larry L. Leslie, "Economies of Scale in Higher Education: Sixty Years of Research," *Review of Higher Education* (Fall 1986), vol. 10, no. 1, pp. 1-28; and Bowen, *The Costs of Higher Education*.

[60] CPEC, *A Capacity for Growth*, p. 98.

[61] Commission on Innovation, *Reducing the Need for New Facilities*.

[62] University center programs offered in the immediate city of a community college are required to be provided at the community college facility, except: teacher education programs offered through contracts with local school districts or nursing programs based at local hospitals.

[63] Selected, high-demand graduate degree programs may also be offered at a community college.

STRATEGY THREE

UTILIZE THE CAPACITY OF CALIFORNIA'S INDEPENDENT COLLEGES AND UNIVERSITIES THROUGH STUDENT FINANCIAL AID PROGRAMS.

Overview for Strategy Three

Strategy Three suggests that the state make greater use of the capacity of California's independent colleges and universities to assist the state in providing access to the increasing numbers of students who will be qualified for college in the next decade. The analysis by William Pickens called "Financing Tidal Wave II," which can be found in the first section of this Resource Guide, provides important fiscal data concerning the fiscal aspects involved with this issue. (See especially "The Capital Outlay Challenge" within that report.)

This section begins by providing two estimates concerning: (1) Cal Grant changes needed to divert additional students to private colleges and universities, and (2) an explanation of a limited pilot program for students who transfer from community colleges to private colleges and universities to complete their degrees. After this, the Center provides an analysis of student aid policies and independent higher education, a report prepared by William Zumeta, which is published here in its entirety. This report includes several examples of state programs designed to divert students to private colleges and universities, and provides a summary that relates these programs to the unique needs of California.

A. Diversion of Students to Private Colleges through Changes in the Cal Grant Maximum

In 1990, the California Postsecondary Education Commission (CPEC) estimated that 1,500 potential UC freshmen would choose an independent institution if the Cal Grant maximum increased from $5,250 to $6,359, the statutory maximum at that time. The estimate did not include shifts from Cal State or the community colleges. The estimated cost of these students diverted from the University of California in 1990 was $1.9 million. Some amount beyond this figure would have been the cost of increasing the maximum grant for all freshmen at independent institutions.

In 1995, the Association of Independent College and Universities (AICCU) estimated that an increase in the Cal grant maximum from $5,250 to $6,725 would result in a diversion of 1,800 enrollments from public to independent institutions (this included all public institutions, not just the University of California). The total cost of raising the maximum was estimated at $14,678,000.[64] This represented the cost of increasing the Cal Grant maximum for all freshmen students with financial need at independent institutions, not just for those "diverted" from public institutions.

The AICCU also estimated that 4,800 students from public institutions would be induced each year to attend a private college or university if the Cal Grant Maximum were raised to $6,725 and if there were a 10 percent increase in the number of grants funded by the state. The annual cost of these changes was estimated at $26,783,000. We believe that this is the best estimate currently available.

The 1996-97 Governor's Budget calls for an increase in the Cal Grant maximum from $5,250 to $7,200 for freshmen in 1997 who choose to attend nonpublic institutions. The fully implemented annual cost of this proposal, according to the Legislative Analyst, would be about $30 million.

Following discussions with AICCU staff and using the CPEC framework of 1990, we arrived at the following estimates for the costs and savings associated with encouraging some 19,200 to attend independent, rather than public, institutions.

Operating Costs

AICCU estimates that the annual operating cost to the state of raising the Cal Grant maximum and increasing by ten percent the number of grants awarded to divert 4,800 students to the independent institutions is $26,780,000. For each four-year cycle, the total cost is $107,132,000.

Operating Savings

Encouraging students to attend the independent institutions allows for savings in the form of state subsidies that would have gone with these students were they to attend a public institution. The savings are estimated in Table 3.1

TABLE 3.1

Operating Savings from Cal Grant Proposal

(For Total Four-Year Cycle)

	Estimated # of Students Diverted	*FTES Diverted*	*State Oper. Funds Per FTES*	*Operating Savings From Diversion*
From UC	9,600	8,824	$6,809	$60,084,795
From CSU	6,000	4,945	$4,734	$23,407,736
From CCC	3,600	2,181	$3,050	$6,650,586
Totals	**19,200**	**15,949**		**$90,143,117**

Capital Savings from Diversion

The primary savings from encouraging students to attend the independent institutions comes from capital outlay saved if these additional students required new buildings in public institutions. Based on CPEC's projection of new facilities for new enrollment, the Center estimates that the diversion of these 19,200 students results in a capital outlay savings of $569 million, as shown in Table 3.2.

TABLE 3.2

Capital Savings from Cal Grant Proposal

(For Total Four-Year Cycle)

	Estimated # of Students Diverted	*Estimated # of FTES Diverted*	*Capital Savings From Diversion*
From UC	9,600	8,824	$442,010,350
From CSU	6,000	4,945	$117,761,300
From CCC	3,600	2,181	$9,483,040
Totals	**19,200**	**15,950**	**$569,254,690**

Thus, the net savings (operating and capital) from the diversion of students to the independents would be $552 million, as shown in Table 3.3. (For further information, see "Financing Tidal Wave II" in the first section of this Resource Guide.)

TABLE 3.3

Net Savings from Cal Grant Proposal

(For Total Four-Year Cycle)

Cal Grant Costs	($107,132,000)
Operating Savings	$90,143,117
Capital Savings	$569,254,690
Net Savings	$552,265,807

B. A Transfer Student Incentive Program

The Center recommends that a pilot program be established with the specific purpose of encouraging students to attend community colleges for two full years and then transfer to a private college or university in California. This program would provide $1,000 annually to each student who has financial need upon enrolling in a private institution and who is eligible for a Cal Grant. How much would such an incentive program cost the state?

No reliable figures exist about the number of community college students who now transfer to independent institutions. Based on a survey of 20 private universities, however, CPEC estimated that the total number of students transferring to the 72 independent colleges and universities is approximately 6,000 per year.[65] But this figure includes students who transfer with two full years of academic credit as well as those who transfer with only a few credits.

Following discussions with CPEC and AICCU staff, the Center estimates that, at most, only 2,000 of these transfer students have fully two years of transfer credits and so would qualify for the $1,000 transfer grant under the pilot program. Based on overall Cal grant eligibility in the independent sector, the Center estimates that approximately 1,000 of these students would currently have financial need, and so these students would qualify for the transfer incentive grant.

How many more community college students would be induced to transfer to a private college or university by this kind of incentive? The Center assumes that many of the students close to two years of credit would be encouraged to remain in the community colleges until they qualify, and that a significant number of high school seniors would be encouraged to begin their student career in the two-year colleges rather than attend a public four-year institution with the transfer incentive.

Accordingly, it is reasonable to assume that an additional 2,000 students would be eligible for the transfer grant when the program is fully operational, in addition to the current 1,000 who are now eligible. Therefore, the annual cost for the pilot program would be approximately $3 million.

C. State Student Aid Policies and Independent Higher Education: Their Potential Relevance For California

By William Zumeta
With the Assistance of John Fawcett-Long
Graduate School of Public Affairs
University of Washington

Purposes and Research

The purpose of this paper[66] is to provide recent information relevant to California concerning policies in other states that are designed (or serve) to direct undergraduate students toward in-state private colleges or universities or to out-of-state institutions, thereby relieving the state's publicly-supported institutions of substantial enrollment burdens. As has been well-documented by the California Higher Education Policy Center[67] and others, California faces staggering enrollment demands—estimated at nearly 500,000 additional qualified undergraduates by 2005—and severely constrained financial resources with which to respond. Thus, it makes good policy sense for the state to investigate how its more than one hundred independent (private, nonprofit) colleges and universities might be more fully utilized to take on some of these additional enrollments.

The primary data base for this analysis is a data file compiled by the author in August and September of 1995 while working with JBL Associates, Inc., on a study for the State of Arizona's Study Committee on Higher Education Charters.[68] Arizona, like many of the western states including California, faces rapidly growing access demands and constrained financial resources. The data file compiled for the Arizona study includes detailed information on nearly 60 programs in 28 states that provide state financial assistance to private colleges and universities or their students. Some of this information was updated for the present project via telephone interviews in mid-April 1996 with the original respondents.

I employ this national data file here to identify potentially workable approaches to utilizing the private higher education sector more fully in California via student aid policy designs. In response to a specific interest of the California Higher Education Policy Center, I also report on several states' recent moves to provide state grants to students who have completed lower-division work to attend private colleges for the final two years of undergraduate study. Using data compiled by the National Association of State Student Grant and Aid Programs (NASSGAP), I also provide the latest available information about the incidence of state aid programs that permit recipients to take their grants to out-of-state institutions, together with some analysis of the merits and drawbacks of this approach in relieving enrollment burdens on California's institutions.

The paper's analysis begins with a brief overview of state programs providing aid to private colleges and universities and their students, emphasizing student aid programs as being most applicable in the California context. The basic categories of state student aid programs are briefly described with the focus placed on programs that are either explicitly limited to private-sector students, known as *tuition equalization* programs, or that include both sectors but provide substantially larger grants to private-sector students, reflecting the non-state-subsidized tuition rates charged by private schools. This latter approach is basically that of the Cal Grant (state scholarship) program. In addition, within the tuition equalization category of programs, those that provide financial *need-based* awards to private-college students are judged to be of most interest to California as an alternative approach. The relative advantages and disadvantages of these alternative approaches are analyzed conceptually, for our national survey in 1995 found that credible empirical evidence about impacts on students' enrollment decisions (i.e., the effect of a given-sized grant on recipients' choices between private and public institutions) is virtually nonexistent.

Next, I describe examples of programs in four states that provide state grants to particular categories of students to attend private colleges and universities for upper-division studies only. These programs are all of quite recent origin and, again, no substantial empirical evidence is available about impacts on students' enrollment choices. Then, I present the latest data on and some analysis of the out-of-state portability option (i.e., allowing students to take their aid grant to an institution in another state). Finally, the concluding section offers some suggestions for the Center and, ultimately, state policy makers to consider.

Overview of State Programs Aiding Private Institutions and Students

Direct State Support to Independent Institutions

It is worth noting at the outset that, according to a national survey completed by the author in 1993, half the states have one or more programs that provide state funds *directly* to independent colleges and universities in pursuit of a variety of public purposes.[69] Nationally, this survey identified a total of 66 such direct support programs. Most common is state support to private universities for programs in medicine, dentistry, and other fields within the high-cost health sciences area. There were 23 such programs in 14 different states providing a total of $168 million in aid to private institutions in 1992-93. Nearly as much (more than $150 million) was provided in the form of broad-purpose direct aid to private colleges and universities in eight states. In most cases, both these types of aid were provided on a "capitation" basis, i.e., on the basis of the institution's enrollment of identified types of students (or, in a few cases, on the basis of certain degrees awarded). The general-purpose aid programs typically provide a specified amount of state funds for each state-resident undergraduate the private institution enrolls, on the theory that the state would otherwise be paying considerably more to subsidize the student's education in a public institution.

Smaller but still significant numbers of states which provide support for programs at private institutions were identified in such areas as targeted research support (usually for technology-oriented research thought to be relevant to the state's economic development); aid to programs helping underprepared, disadvantaged, and minority students; and support of teacher education and school/college cooperative efforts. In addition, three states provided capital funds to independent colleges and universities in 1992-93, and there were several multi-purpose and miscellaneous aid programs. In many, but not all, cases the state's support for these purposes is provided through a contract arrangement. In other instances, the state operates a sort of grant competition and weighs institutions' proposals against its needs, while in still others the state simply appropriates funds periodically, as particular needs arise, to private institutions known to have competence in the pertinent field.

This information is provided as general background. While California could conceivably alter its traditions and legal arrangements to permit contractual or other arrangements with private colleges and universities to subsidize their enrollment of state-resident undergraduates,[70] it is assumed here that this is unlikely to occur in the state. Indeed, it is notable that, of the 66 programs of state direct funding to private institutions in 25 states identified in the 1993 survey, only three were found in western states. (Two of these were essentially student aid programs where the state provided some of its aid directly to the institutions and one of them has since been eliminated.) California, like other western states, does not have the long tradition of direct state involvement with venerable private colleges and universities that some of the large eastern and midwestern states have.

State Student Aid Programs

By far the largest amount of state dollars flowing to independent colleges and universities flow to them through their students who take state scholarships and grants to private institutions of their choosing. According to the latest national survey by the National Association of State Grant and Aid Programs (NASSGAP, 1996), just over $1 billion in *need-based* state grant aid to undergraduates[71] went to students attending private colleges and universities within their home states in 1994-95. In addition, an uncounted amount of state aid that was *not* financial-need-based, or that was taken by recipients to out-of-state institutions, was used by undergraduates attending private institutions. This additional sum was likely in the range of $100 to $200 million in 1994-95, bringing the total of state grant aid to private college and university undergraduates to about $1.2 billion. This would represent over one-third of the $3.15 billion in total state grant aid identified by NASSGAP in 1994-95.

As suggested in the previous paragraph, two broad categories of state grant aid can be identified: aid granted to students on the basis of their financial need and non-need-based aid. In 1994-95, 78 percent of all the state aid was need-based. Within the non-need-based category fall: *categorical* programs, which award aid to students pursuing certain fields of study or occupations; *merit-based* aid, which emphasizes recipients' prior academic achievements; and *tuition-equalization* programs, which provide funds to all state residents attending eligible private colleges and universities regardless of financial need or academic merit. (Of course, not every states has all these types of programs.) Both the categorical and merit-based categories have grown faster than all state award dollars in recent years, but they remain relatively small parts of the total. No complete data are available on the proportion of these types of awards that go to students who attend private colleges and universities.

Tuition-equalization programs not based on financial need. The tuition-equalization category of programs is of some interest here because these are state grants that can only go to private-sector students. Thus, these grants might be viewed as a mechanism for attracting students to private colleges and universities who might otherwise attend public schools. Table 3.4 presents some key data from JBL's 1995 survey for the State of Arizona on the seven "pure" (in the sense of being non-need-based) tuition-equalization programs now in existence in six states. These programs provide grants designed to help "equalize" state subsidies provided to resident students attending private institutions because they do not benefit from the indirect subsidies that their fellows attending public campuses receive. (This equity-oriented language is how these states' policy documents and officials tend to describe the primary purpose of these tuition equalization programs.) In 1994-95, the grants provided were in the range of $500 to $1,500 in five of the six states.[72]

The notable exception is Georgia, from which we were also able to obtain data on appropriations for 1995-96. Similar to the other five states shown in Table 3.4, Georgia provides a state grant from its general fund through its Tuition Equalization Grants program of $1,000 to each resident student attending a Georgia private college. The interesting new twist is that Georgia has *added to this* a $1,500 grant to each private-college student from its lottery-funded HOPE Grants program. Thus, Georgia is now providing $2,500 to each private-college student regardless of financial need or academic merit (though there is talk about the possible need for such criteria in the future). This figure would seem to be large enough to make some real difference in students' enrollment choices at the margin.

It might be noted that with the exception of Ohio, which provides a relatively small grant, all of these pure tuition equalization programs are located in southern states and date back to the 1970s (including the Tuition Equalization program in Georgia but not the HOPE Grants supplement). These states spend substantial amounts on the programs and aid many thousands of students but, surprisingly, it is not clear whether these expenditures have much payoff in terms of diverting students from public institutions. As indicated above, the primary goals of these programs are stated in terms of equity—to more nearly equalize state subsidies across the public and private sectors—not cost-effectiveness. It may be that most of the aided students would have attended private institutions without the grants and no doubt many of them would not qualify for need-based grants.

After exhaustive telephone inquiries with knowledgeable officials in these states, only in Florida were we able to turn up anything resembling analytical evidence of the extent of the tuition equalization (Florida Resident Assistance Grant) program's impact on students' attendance decisions. The state Postsecondary Education Planning Commission[73] concludes that the program is cost-effective in that savings greatly exceed grant costs for the approximately one-third of grant recipients it thinks would be likely to "migrate" to the public sector were the grants removed. However, judging from the raw survey data on which they are based, these calculations appear to be overgenerous in estimating how many would migrate (only 17 percent of the grant recipients actually said that they would do so), and fail to account for the cost of the grants to the many more students whose enrollment decisions would presumably be unaffected.

Need-based, tuition-equalization programs. Of more direct relevance to California, where the tradition of taking applicants' financial need into account in financial aid awards is strong, are the 13 state programs in 12 states which limit awards to private college students and aid only needy students. The key data on these programs derived from the 1995 JBL survey are depicted in Table 3.5. As the table shows, these types of programs provide significant aid to students, mostly in the $1,000 to $2,500 annual grant range,[74] and are fairly widely distributed around the country. In particular, two western states have such programs: Texas and New Mexico. Unfortunately, as with the non-need-based, tuition-equalization programs, no useful analytical evidence on the impact of the grants on students' enrollment decisions could be obtained from the states.

A need-based grant to undergraduates attending private colleges and universities might be considered in California. Eligibility could be determined independently of tuition and fee levels (in

TABLE 3.4

"Pure" (Non-Need-Based) Tuition Equalization Student Aid Programs in the States

			1990-91				1994-95			
ST	**Program Name**	**Year Est.**	**# Aided**	**Total $ (millions)**	**Max. Award**[a]	**$ Per Stud.**[b]	**# Aided**	**Total $ (millions)**	**Max Award**[a]	**$ Per Stud.**[b]
AL	Stud. Grant Program	1978	7,341	$3.1	$888	$417	8,335	$6.2	$948	$738
FL	Resident Assist. Grants	1979	16,127	$17.2	$1,200	$1,065	18,232[c]	$19.9	$1,300	$1,090
GA	HOPE Grants	1993	Program not in existence				25,844	$20.3	$1,000	$785
GA	Tuition Equal. Grants	1972	15,083	$14.5	NA	$962	19,391[d]	$19.3	$1,000	$995
NC	Legis. Tuition Grants	1975	25,681	$24.6	$1,116	$957	24,911	$25.7	$1,250	$1,030
OH	Stud. Choice Grants	1984	38,991	$20.7	$578	$531	43,000	$24.2	$588	$563
VA	Tuition Assist. Grants	1972	12,369	$18.1	$1,460	$1,459	12,775	$17.5	$1,500	$1,372

		1995-96			
ST	**Program Name**	# Aided	Total $ (millions)	Max. Award[a]	$ Per Stud.[b]
GA	HOPE Grants	NA	$31.1	$1,500	NA
GA	Tuition Equal. Grants	NA	$22.3	$1,000	NA

[a] This is the award size assuming a student's full-time enrollment throughout the academic year.

[b] Figures equal total dollars expended divided by headcount enrollment.

[c] Estimated.

[d] FTE.

Source: William Zumeta for JBL Associates Inc., Survey of State Programs Aiding Private Colleges and Universities and Their Students, 1995.

TABLE 3.5

Need-Based Tuition Equalization[a] Student Aid Programs in the States

		1990-91					1994-95			
ST	*Program Name*	*Year Est.*	*# Aided*	*Total $ (Millions)*	*Max. Award*[b]	*$ Per Stud.*[c]	*# Aided*	*Total $ (Millions)*	*Max. Award*[b]	*$ Per Stud.*[c]
CT	Indep. Coll. Stud. Grants	1976	4,000	$12.1	$6,384	$3,018	5,500[d]	$12.1[d]	$7,700[e]	$2,192[d]
IA	Tuition Grants	1969	14,252	$32.0	$2,650	$2,246	14,100[d]	$31.7[d]	$2,650	$2,250
KS	Indep. Coll. Tuition Grants	1972	3,624	NA	$1,700	NA	3,200[f]	$5.4[f]	$1,700[h]	$1,688
KY	Tuition Grants	1975	6,711	NA	$1,200	NA	7,370[f]	$8.1[f]	$1,200[h]	$1,095
MI	Tuition Grants	1966	25,041	$39.3	$2,150	$1,570	31,950[d]	$45.8[d]	$1,975	$1,433
NE	Postsecondary Educ. Awards	1991	Program not in existence				420	$0.7[f]	[g]	$1,548
NM	Student Choice	1984	287	$0.5	$2,273	$1,676	457	$1.0	$2,273	$2,163
NC	State Contractual Scholarships	1971	7,823	$11.2	NA	$1,434	8,884	$13.5	$7,788	$1,514
SC	Tuition Grants	1970	6,816	$17.9	$3,990	$2,626	8,446	$16.7	$3,266	$1,982
TN	Stud. Assist. Award Restoration Act	1993	Program not in existence.				NA	$2.4	$840	NA
TX	Tuition Equal. Grants	1971	16,736	$23.0	$3,150	$1,375	17,500[a]	$25.2[d]	$2,565	$1,440[b]
WI	Tuition Grants	1965	8,669	$14.3	$2,172	$1,648	8,880	$16.0	$2,172	$1,802
WI	Priv. Sch. Stud. Minority Grants	1986	339	$0.5	$2,500	$1,257	760	$0.8	$2,500	$1,093

[a] "Tuition Equalization" is defined as meaning that only private college students are eligible for the program.
[b] This is the award size assuming full-time enrollment.
[c] Figures equal total dollars expended divided by headcount enrollment.
[d] Estimate.
[e] Includes awards from other aid programs.
[f] Estimated 1993-94 data.
[g] Determined by institution.
[h] 1993-1994 data.
Source: William Zumeta for JBL Associates, Inc. Survey of State Programs Aiding Private Colleges & Universities and Their Students, 1995.

order to establish "true" financial need) and grants for private-college attendance made substantial enough to plausibly affect some needy students' choices at the margin. If the program were designed carefully with evaluation in mind, feedback from student surveys and enrollment patterns could support adjustments in grant levels to optimize cost-effectiveness (or lead to the conclusion that the program could not be made cost-effective). Certainly, the tuition grants would have to be capped at a financially and politically feasible level and be low enough to provide no incentive for independent institutions to raise charges to capture more state subsidy.

A major drawback to this approach in California is that it would, in effect, operate outside the long-standing Cal Grant structure, which provides grants to students in both public and private institutions. It would probably therefore attract only narrow political support from pro-private-sector partisans and a few policy analysts. If enacted, it would likely be under constant attack by public institutions and their supporters and would be in direct competition with the established student aid programs for appropriations. These may well be fatal flaws.

Public/private need-based grant programs. Our research shows that most states have a program similar to Cal Grant A, which provides need-based grants to students who may take them to *either public or private* colleges. In some large states (e.g., Illinois, Minnesota, New Jersey, New York, Pennsylvania), this program is the major state student aid program. In such a scheme, students attending private institutions tend to receive larger grants because the higher charges they face are considered part of their calculated "need" up to some cap. The cap is sometimes linked to public research university tuition or attendance costs, which seems to smooth the politics.

This arrangement mixes up true (economic-circumstances-determined) need with tuition-derived need, but has the advantage of insuring that public and private institutions are "feeding from the same trough" in the student aid area, and thus presumably making common cause for the program. A delicate balance may be struck (if leadership is skillful enough and other circumstances are favorable) between keeping the maximum award size large enough to direct some students at the margin toward private institutions, thus saving the state either money or capacity in the public sector, and sustaining public institution support. Under current circumstances, it would probably require a substantial increase in the number and average and maximum size of Cal Grants awarded to students seeking to attend independent institutions to redirect a substantial number away from the UC and CSU campuses, with their much lower fees and charges.[75]

As in many states, public institutions' support for Cal Grants, even under the present funding arrangements, is not overly strong. For many years, such programs have been considered of most benefit and interest to the independent sector of higher education. In general, public institutions would prefer to see state funding go into appropriations to them. In regard to student aid in particular, in recent years the public segments have taken matters increasingly into their own hands by using some revenues from increased fees to finance need-based aid to their own students.

Thus, to assure public segment interest in supporting the Cal Grant program, it might be necessary for the state to take back control of all or most student aid funding, so that the state can determine how the funds are allocated and what incentives are created. This would allow the state to increase the role of market-like competition for students and to experiment with the size of grants necessary to maintain the political and cost-effectiveness balance described above. Such a policy thrust would clearly require a period of experimentation since evidently no one has seriously analyzed how the grants have influenced enrollment distributions in the past, nor can anyone confidently predict what the optimal-size grant would be for the future.

A more radical step—probably not politically feasible in California nor appealing philosophically to many—would be to force still more public segment attention to student aid and to increase incentives for students to choose private institutions by sharply raising both public college and university fees and the supply of need-based aid. This is the *high-tuition/high-aid* model of financing higher education that has gotten attention once again recently in the policy literature and in at least a few states.[76] There are real questions about the long-term viability of this model in most states, not just in California.

Specially Designed Programs for Upper-Division Students

Our investigations have identified four programs (now in operation or soon to go into operation) that provide state student aid grants to designated classes of students attending private colleges within the state for upper-division (i.e., third and fourth-year) undergraduate studies. It should be noted that all are quite limited in scope, and three of the four are very new. These programs are described below and then the applicability of this basic idea to California's situation is weighed.

a. Washington's Educational Opportunity Grants Program

This program is the oldest of the four. It was established in 1990 as part of the state's effort to redress its shortfall in participation in higher education at the upper-division level and prepare for the same large demographic bulge of college-age students that confronts California. At the same time, the state embarked on the development of five university branch campuses in (mainly) fast-growing areas around the state as part of the same response effort. Indeed, the Educational Opportunity Grants (EOG) program is merely a small adjunct to this broader access expansion strategy.

During the research and planning that preceded the decision to begin the branch campuses, it was discovered (or verified) that certain counties located relatively far from the state's six public universities were seriously below state averages in resident enrollment at the upper-division level, yet some of these counties had four-year private colleges within their boundaries or nearby. Some of these private institutions were also concerned about the advent of low-priced competition from the new University of Washington or Washington State University branches. The result was the creation of a new need-based student grant program available to upper-division students only in the affected counties (the EOG). This new program was to provide relatively large grants, designed to be equal to public research university tuition levels at the maximum, for attendance at one of the branch campuses or at a nearby private college or university. [The EOG grants function as transfer grants in that only students who have completed an associate of arts degree or have achieved junior standing and have been accepted into a four-year college or university are eligible.] A stated goal of the program is to serve needy "place-bound" students and potential students. One effect of the program has been to reduce, though not completely to eliminate, opposition from the private higher education sector to the continuing development of the public branch campuses.

In 1990-91, 210 students were served by the program and $459,000 was paid out in EOG grants, an average of about $2,200 per grant. Eighty-five percent of the awards in that year went to students attending private institutions. These figures increased to 452 awards and $1.033 million in 1992-93 (an average of about $2,285 per grant), but then declined in the next two years to 170 students and just under $400,000 in 1994-95 (an average of about $2,350). The share of awards going to private college students has steadily fallen over the years from the original 85 percent in 1990-91, to 68 percent in 1994-95. The average award size has increased a little over these years, but the maximum award level remains at the original $2,500 though both public and private-sector tuitions have climbed sharply during this period. An evaluation of the program completed by

NORED[77] concluded that the program was meeting its statutory intent in serving the place-bound, mostly community college graduates, and that recipients completed their baccalaureate degrees at above-average rates. This study also found suggestions that the private institutions used some of the resources provided to their students via EOG to replace institutional spending on student aid.

The recent declining funding trend for the program appears to be the product of the program's narrow support base (mostly the private colleges and their supporters) in a time of a serious squeeze on the state's budget. The decreasing share of the awards going to students attending private institutions is probably mostly attributable to the rapid growth in student interest in the branch campuses (especially the UW-Tacoma branch), and perhaps partly also to the failure of the grant size to keep pace with rapid private-sector tuition growth rates. The grant size would probably have to be expanded sharply to attract many students into the private rather than the public higher education sector, and this would compete with the considerable pressures on the public branches for funds with which to grow rapidly to demonstrate their worth in meeting the state's access crisis. This brief history illustrates the dangers of a too-narrow political support base.

b. Virginia's Private Contract Program

We were told that the name of this program might be changed in the near future, but it is descriptive in that the state contracts with the private colleges involved for their participation.[78] Like the Washington program, this program has a geographic element as it is designed to serve location-bound students in a particular part of the state. In this case the affected area is a rural part of the state where there are two community colleges but little access to public four-year institutions because of distance. A key goal is to increase educational attainment levels in this relatively remote, underserved region. The program is even newer than the Washington EOG, having begun on a pilot basis just this year (1995-96). We learned that the personal efforts of one of the private college presidents were quite important in getting the program enacted and funded by the Legislature.

Under this program, the state has contracted with three private colleges in the target region to enroll one hundred local residents for upper-division studies and has provided the college with $3,500 for institutionally administered financial aid for each qualifying student it enrolls. The aid is not strictly need-based; the colleges have discretion as to how to award it. Though the pilot effort could be enlarged somewhat in future years, the state feels that it can afford these relatively large grants (about half the level of the state's per-student contribution to public higher education costs, by design) because the circumstances are so special that the total cost will inevitably be limited. There is no clear intent to extend this model to help meet Virginia's broader crisis of access to higher education, which bears some resemblance to that of many western states. At the time of our last telephone interview (September 1995) there was some concern that the program might negatively impact enrollments at the nearest public four-year institution, and that the per-student funding level might attract envious comparisons from other student aid programs and even from some public institutions. It will be interesting to see how the politics of this program develop over time.

c. Florida's Limited Access Grant Program

This program is even newer than the Virginia contract program, having been enacted in 1995 and been in the planning stages all of this academic year. The Legislature has provided $1 million for the first set of awards in 1996-97. The grants will provide up to 50 percent of the state's cost per student in public institutions in aid to qualifying students attending Florida private colleges or universities.

Like the Washington and Virginia programs, this program also has a specialized purpose. It is designed to expand access to certain upper-division majors that are oversubscribed in the state's public colleges and universities. Recipients may be community college graduates or state university students. The state's Postsecondary Education Planning Commission has now identified eligible fields, according to the enabling legislation, that are in high demand and offer entry-level wages of at least $10 per hour. These fields include several fields in special education, pre-elementary education, electrical/electronics engineering, nursing, physician's assistant, occupational therapy, and physical therapy. Again, there is no strong indication that the state is planning to move in this direction for addressing its broader access/financing problem.

d. Arizona's Proposed Postsecondary Education (Upper-Division) Voucher Program

This program is the newest of all, having been enacted in April 1996. The legislation is one result of the work of the legislatively appointed Study Committee on Higher Education Charters, which commissioned the survey of other states' efforts on student aid affecting students in private colleges that is the main data base for this report.

The legislation provides for a very small pilot program of 60 "tuition vouchers" (student aid grants) in 1996-97 reserved for new graduates of Arizona's community colleges (they must have received an associate degree after July 1, 1996) to attend an accredited private college or university in Arizona to complete the baccalaureate degree.[79] The "voucher" a student receives can be up to $1,500 per year for two years, with the amount per individual determined by the state's student aid agency (the Postsecondary Education Commission) taking into account both financial need and academic merit.[80] The total initial appropriation, including administrative costs, is to be $100,000 for the first year. The level of 60 grants was derived from simulations conducted by JBL, which suggested that a $1,500 private-sector-only voucher might divert about ten percent of the annual number of community college students who transfer to the public universities away from those public institutions and toward private institutions instead. Over time, however, the absolute number might grow considerably if students respond to the increased incentive to acquire an associate degree.

While this program is starting very small, unlike the other three described above, it is evidently seen by some state policy makers—at least those who support it—as the beginning of a broad-scale program to help cope with Arizona's projected large growth in demand for higher education and limited space in its public universities. On the other hand, however, the Legislature has also passed in this session about $200 million in appropriations for new construction by public institutions, so the relative strategic importance of the tiny voucher initiative should not be exaggerated. Finally, it should also be noted that the upper-division voucher proposal passed each committee hurdle and house floor vote by narrow, party-line votes, with most Republicans (the majority party in both houses) voting in favor and most Democrats against.

Possible Implications for California

The material just reported shows that no state has yet implemented a broad-based program of aid for community college graduates to attend private colleges and universities for upper-division work. The Washington, Virginia, and Florida programs are all small and specialized in purpose, in addition to being considered experimental at this point. The Arizona proposal might conceivably become a broad-based program, but this is far from assured. It too is designed as a pilot program, with the results to be carefully evaluated at the end of the first year.

These patterns suggest some things for California policy makers to keep in mind. First, it might be wise to begin moving in the direction of an upper-division aid grant for private-college attendance (avoiding the politically loaded term, "voucher") by limiting the initial grants to instances where access to public four-year institutions is either limited by geography or by oversubscription in particular majors. If public institutions already have plenty of applicants (or soon will have), this should be more readily seen as filling an empty niche. The new grants could be viewed as an alternative to expensive new construction or expansion of public-sector capacity in underserved areas and oversubscribed fields, especially high-cost fields. Beginning in this way should help build familiarity and acceptance of the basic idea of aid grants specifically for private-college attendance for the final two undergraduate years.

This approach also reflects the second lesson, which seems to be to start small and in a nonthreatening way with plans to assess the impacts carefully year-by-year. If surveys of participating students show that many would otherwise have been denied access (or been seriously delayed in access) to upper-division opportunities, this would indicate that the program were meeting a real need. If the program were simply attracting students away from public institutions and thereby creating underutilized capacity in their programs, this would suggest the new grants were not (or at least not yet) needed to meet demand. This basic concept could be broadened beyond individual majors to all upper-division opportunities as the program expanded with the expected growth in general demand.

In the California context, such a program would probably be more acceptable, initially at least, if the aid grants were financial-need-based. However, in concept it may also make sense to provide some non-need-based support too (analogous to the per-student subsidies built into state appropriations to public institutions) in a situation where student demand will exceed capacity.[81] In any case, the grants should be modest in size at first, though large enough to induce students to attend who would otherwise be unable to do so. For these reasons, as well as for considerations of financing and perceived equity, a target range might be around the level of grant aid that a similar student might expect if he or she attended a University of California campus. Grants might later be expanded in size to attract more students, if the concept seemed to be politically viable initially. Of course, grants should never be as large as the per-student cost to the state of expanding public-sector capacity to meet the same needs.

Interstate Portability of State Student Aid Grants

We have compiled some data from the latest NASSGAP survey (covering 1994-95)[82] on interstate "portability" of student aid grants (see Table 3.6). The data show that such freedom for recipients to take their state grants to out-of-state institutions is rather uncommon. Only a total of 15 programs in 10 states allow for such portability, and in most cases the program involved is not the state's major grant program but a small specialized one. Overall, only about 1.2 percent of state grant awards nationally and 0.5 percent of award dollars were carried to out-of-state institutions in 1994-95.[83]

There is a notable geographic pattern apparent in the data shown in Table 3.6. First, there are no states west of Wisconsin with interstate portability provisions in any of their aid programs. Second, with the exception of Pennsylvania, which has a long-standing commitment and well-developed arrangements for portability, and perhaps Massachusetts, the other states showing significant numbers of students taking their grants out-of-state are all small New England states

TABLE 3.6

Number and Percent of Scholarship and Grant Awards and Dollars Provided to Undergraduate Students Attending Out-of-State Institutions, 1994-1995[a]

State	# of Awards at Out-of-State Program	% of Program Institutions	Value of Awards at Out-of-State Total	% of Program Institutions	Total
IN	Higher Education Award Freedom of Choice Grants	19	0.1	$28,622	0.1
MD	Senatorial Scholarships	108	1.4	$92,411	1.5
MA	General Scholarship	990	3.0	$1,374,826	4.0
NH	Incentive Program	415	27.0	$202,267	25.0
PA	State Grant Program	10,070	7.0	$4,593,565	2.1
RI	Scholarship and Grant Program	3,301	27.0	$1,773,555	28.0
VT	Incentive Grant Program	3,525	39.9	$3,531,325	33.8
VT	Part-Time Grant Program	151	5.8	$51,711	5.2
VT	Non-Degree Grant	23	2.2	$7,599	2.2
VA	College Scholarship Assistance[b]	41	0.5	$29,813	0.5
VA	Last Dollar Program[b]	4	0.5	$3,329	0.5
VA	Discretionary Aid	170	0.5	$283,516	0.5
VA	Virginia Transfer Grant	3	0.5	$4,102	0.5
WV	Higher Education Grant Program	46	0.9	$23,050	0.4
WI	Wisconsin Higher Education Grant	13	0.0	$25,382	0.1
	ALL STATES	18,879	1.2	$12,025,073	0.5

[a] Data were not available from the District of Columbia, Nevada, New Mexico, North Carolina, South Dakota and Texas.

[b] Estimated figures.

Source: 26th Annual Survey Report, National Association of State Student Grant and Aid Programs: 1994-95 Academic Year.

(New Hampshire, Rhode Island, Vermont). These states seem to be reacting mainly to the limited higher education opportunities available within their borders.

These data indicate that California would be working with few precedents, particularly in the western region, in making its student aid grants portable across state boundaries. This suggests that California would have considerable work to do in forging interstate reciprocity agreements with neighboring states for mutual portability. Moreover, since most western states face similar demand pressures on their public higher education capacity to those faced by California and most have only limited private collegiate sectors, there is inherently limited potential here. An additional consideration is that reciprocity would likely have the net effect of expanding demand on California's relatively attractive institutions rather than contracting it. Reciprocity with distant states like Massachusetts and Pennsylvania might be easier to work out, but the net effects are uncertain and the market inherently limited by distance.

California could, of course, simply unilaterally declare its student aid grants tenable at out-of-state schools. This would probably produce a modestly increased flow of students out of the state, but evidence suggests that many would not return after college. Moreover, proposals to "send the state's taxpayer dollars out-of-state" are usually not popular with elected officials.

Conclusion

This paper has sought to document lessons for California policy makers from state student aid programs across the country. To summarize the major implications briefly, I conclude that basing any new student aid effort directed at expanding the state's enrollment capacity by aiding students attending private colleges and universities would probably be best advised to stay within the existing Cal Grant program structure. This has the advantages of working within an accepted framework and at least making possible the building of a broad base of support that would not be likely to emerge under program frameworks focusing strictly on aid to students attending private institutions. To have a chance of establishing this broad support base, it will probably be necessary to reclaim the resources used for student aid by the public institutions themselves, as well as to expand the total resources available for student aid. A key to making Cal Grants useful in expanding enrollments will be to find and sustain the right balance between making the grants large enough to attract more students to private institutions, while not so large as to erode public institutions' support.

Small steps in the direction of specialized student aid grants for upper-division students have been taken in several states. The information about these suggests that California might begin to move in the direction of a student aid grant for community college transfers to attend private institutions by starting with a small pilot program focused on areas of obvious underservice by the public four-year institutions, such as in particular geographic regions with limited access and oversubscribed major fields (especially those where costs to expand capacity would be high). If, after careful evaluation, such a program were found to have increased access successfully, it might be expanded to a wider range of community college transfers as demand grows and public capacity does not.

Interstate portability of student aid grants might be thought to have some potential for expanding higher education opportunities for Californians in a time of limited capacity to meet burgeoning demand. However, there are few if any precedents in the western part of the country, some inherent political drawbacks, and, probably most important, the state's neighbors face similar demand pressures and so have little excess capacity to share with California. In sum, the potential of interstate portability seems quite limited.

California, then, must solve its own problems in regard to higher education capacity expansion in the late nineties and the early twenty-first century. The primary answers no doubt lie in careful and imaginative use of the state's public college and university capacity. The private sector can, however, play an expanded supporting role—and one that grows over time—if state policy makers build carefully on the framework of existing, largely successful higher education policies and broaden their concept of shared responsibility and teamwork in the face of the emerging challenges to include public/private partnerships for educating all Californians.

Endnotes for Strategy Three

[64] Association of Independent California Colleges & Universities, *The Uncertain Partnership: A Study of the Financial Condition of California's Independent Colleges and Universities* (1995), p. 85.

[65] CPEC, *Performance Indicators of California Higher Education*, Report #96-2, p. 58.

[66] Prepared for the California Higher Education Policy Center under contract through JBL Associates, Inc.

[67] *Tidal Wave II: An Evaluation of Enrollment Projections for California Higher Education* (San Jose: California Higher Education Policy Center, September 1995).

[68] John B. Lee, William M. Zumeta, and Edward P. St. John, *Feasibility Study of Establishing Private Higher Education Charter Institutions and Issuing Tuition Vouchers* (report to the Joint Legislative Budget Committee, State of Arizona, December 1995).

[69] William Zumeta, with the assistance of John Fawcett-Long, *State Policies and Independent Higher Education: A Report on National Surveys of Three Key Groups of Policy Players*, sponsored by the Pew Charitable Trusts and the National Institute of Independent Colleges and Universities (Seattle: University of Washington, Institute For Public Policy and Management, September 1994).

[70] Presumably, the state's interest would be in subsidizing only *increases* in an institution's enrollment of California-resident undergraduates, since the current level is enrolled without the subsidy.

[71] According to NASSGAP, a very high percentage of state scholarship and grant aid goes to undergraduates—99 percent of need-based aid in 1994-95.

[72] The most pertinent figure regarding size of award is the column labeled maximum award, which is the amount a student would receive if enrolled full-time throughout the academic year.

[73] *Accountability Review: Progress Report*, prepared in response to Specific Appropriation 573 of the 1994 General Appropriations Act (Tallahassee: Florida Postsecondary Education Planning Commission, December 1994).

[74] In this table, the most meaningful figures are probably the dollars-per-student amounts, which give a rough idea of the average size of grants. Maximum awards in these programs are often hypothetical figures and also in some cases include amounts awarded through other aid programs.

[75] Note that the space thus freed up on public campuses would presumably be readily filled by the expected larger numbers of qualified students in the coming years.

[76] Charles S. Lenth, *The Tuition Dilemma—State Policies and Practices in Pricing Public Higher Education* (Denver, CO: State Higher Education Executive Officers, December 1995).

[77] *Educational Opportunity Grant Program Evaluation*, prepared for the Washington State Higher Education Coordinating Board (Olympia: NORED, May 1994).

[78] In fact, since the report was written this program has been discontinued. A description of the program is still provided, however, to provide information about options available.

[79] There are about 15 eligible private institutions, several of which are for-profit and another group that are church-affiliated, so a legal challenge is possible.

[80] Recipients will have to be enrolled full-time. If a recipient fails to receive the baccalaureate within three years after receipt of the state voucher, he or she will be required to repay the full amount received to the state.

[81] Evaluation would, of course, need to assess that private institutions had indeed increased their enrollments of California undergraduates, not simply used the state funds to replace institutional aid funds without adding to the number of students served.

[82] National Association of State Student Grant and Aid Programs, *26th Annual Survey Report, 1994-95 Academic Year* (Albany: New York State Higher Education Services Corporation, February 1996).

[83] NASSGAP's 1994-95 survey did not include data from the District of Columbia, Nevada, New Mexico, North Carolina, South Dakota, and Texas.

BEST COPY AVAILABLE

STRATEGY FOUR

INCREASE STUDENT FEES MODESTLY TO CONTRIBUTE TO THE SUPPORT OF ADDITIONAL UNDERGRADUATE STUDENTS.

- Undergraduate student fee increases should be based on two factors (1) affordability, as measured by the rate of growth of personal income in California, and (2) the student share of the cost of additional undergraduate enrollments.

- The state should provide student financial aid equal to one-third of student fee increases; student fees should not be used to fund additional student financial aid.

Overview for Strategy Four

This section provides information about the increased responsibilities of the students in relation to student fees. As such, this is only one of the sections that focuses on the students' responsibilities in a Shared Responsibility approach; to complement this section readers will also want to refer to strategies six, eight and nine, which involve accelerating student learning, helping students to become better prepared when they enter college, and assessing educational outcomes. Strategy Two, which emphasizes the use of classrooms more each week and on a year-round basis, also affects the ways students (as well as institutions) contribute their "share."

The best place to start in gaining a full understanding of students' and families' "shares" in relation to *Shared Responsibility* is William Pickens' analysis of the fiscal approach to the concept of Shared Responsibility, which is called "Financing Tidal Wave II" and is published in full under strategies one and two of this resource guide. Refer specifically to Table 1.8, and the text surrounding it, particularly under "Details of the Shared Responsibility Proposal." This section, which provides a brief explanation of the student share, is most effective as a complement to Pickens' more thorough analysis.

Explanation of the Student Share

The Shared Responsibility approach suggests that all students should bear responsibility for providing a share of the costs (exclusive of student financial aid) of maintaining access to California's colleges and universities—so that the burden is not imposed solely on those students who are new to higher education. At the same time, there should be a limit placed on student fee increases.

As part of the fiscal simulation of student fee increases that is provided in Appendix Three and Table 1.8 of the "Financing Tidal Wave II" paper in section one of this Resource Guide, the students in each of the public segments are asked to provide a share of the additional resources required to enroll the new students. This split came from the assumption that the responsibilities would be shared "fairly" among the state, the students, and the institutions for the purposes of this simulation. (The actual ratio could be modified depending on the circumstances within each segment. Also, the assumption is that students would contribute in other ways besides financially—by attending classes year-round and on weekends, by being better prepared for college, etc.)

After simulating the annual student fee increase needed for the student contribution to enrollment growth, it seemed appropriate to limit the annual increase to the following:

UC Students:	No more than a 5% Annual Increase
CSU Students:	No more than a 4% Annual Increase
CCC Students:	No more than a 3% Annual Increase

In applying these limits to the simulation (See Appendix Three and Table 1.8 in the "Financing Tidal Wave II" paper), only community college students exceeded their segment's cap, and they did so only in four of the ten years. If the state provides funds in lieu of amounts above the annual increase maximum, then $52.9 million will be required during those four years for the community colleges. With this adjustment, the total amount provided by students from all three public segments under this simulation is $289 million.

It is important to note that the entire $289 million in student fee revenues will be used to support educational programs in each segment. None of the student funds will be recycled for student financial aid which is the state's responsibility under the Shared Responsibility approach.

It is also important to note that this simulation applies only to the fee increase necessary to support the enrollment *growth*. The Center also estimates that fees may increase to support on-going costs and that these fee increases should be based on corresponding increases in personal income. Overall, annual student fee increases (for enrollment growth and ongoing costs) should not exceed 6% at UC, 5% at CSU, and 4% at CCC.

STRATEGY FIVE

ELIMINATE MEDIOCRE QUALITY AND LOW PRIORITY PROGRAMS, AND REALLOCATE RESOURCES TO THOSE OF HIGHEST QUALITY AND HIGHEST PRIORITY.

- The University of California should offer a limited number of the highest quality graduate programs in every significant area of knowledge, but should not maintain a comprehensive array of graduate programs at each campus.

Overview for Strategy Five

Strategy Five focuses on enhancing the quality of programs at the same time that resources are limited. This section begins with examples of state initiatives that have been designed to enhance the quality of college and university programs mainly at the undergraduate level. After providing these examples, the section turns to graduate programs and outlines the changing trends in research and teaching that reveal there is an oversupply of graduate programs nationwide. The Resource Guide, in turning specifically to California's graduate programs, then provides a summary of an extensive report on California graduate programs written by William Chance. Finally, this section provides a summary—also written by Chance—of rankings by the National Research Council in relation to the University of California's graduate programs.

A. Examples of State Initiatives to Improve Quality

1. Illinois' "Priorities, Quality and Productivity" (PQP) Initiative

For the past several years, Illinois has undergone a major statewide effort to reduce costs, increase efficiency and reallocate resources in the state's 12 senior public universities and 49 community colleges. Established in 1991, the Priorities, Quality and Productivity (PQP) initiative has called on colleges and universities to set a clear institutional mission, and then, based on that mission, to evaluate the quality and priority of their current program offerings. Institutions were challenged to consolidate or eliminate lower priority and lower quality programs and services, and to use resources saved through this activity to reinvest in and strengthen the quality of higher priority programs and services.

Since the program began, most of the senior institutions have reduced administrative costs and have eliminated many marginal academic programs. According to the Illinois Board of Higher Education (BHE), the state coordinating board in Illinois, more than 245 academic programs have been eliminated, consolidated or reduced in size since 1992.

The actions of the senior institutions have saved approximately $120 million, according to the BHE. This money has been reallocated by the campuses to what they determine to be high priority needs, such as improvements in undergraduate education.

Contact: Illinois Board of Higher Education, 4 West Old Capitol Plaza, Room 500, Springfield, IL 62701; 217-782-2551.

2. Ohio's Selective Excellence Program

In 1992, the National Center for Higher Education Management Systems (NCHEMS) released "An Evaluation of the Ohio Selective Excellence Program," a report that evaluates Ohio's attempts, in the mid and late-eighties, to build institutional capacity in higher education through selective investment in response to broadly identified state needs. Ohio's Selective Excellence Program, which was one of the first state-based quality incentive programs in the nation, was begun in 1983, when Ohio was emerging from a major recession that had steadily eroded the collective asset represented by its public colleges and universities. The funds were directed primarily toward developing institutional capacity rather than achieving a set of explicitly identified state goals. The overall strategy relied upon individual institutions: to select activities and capacity-building investments that were broadly consistent with state needs; to implement these activities successfully; to focus these efforts in terms of a clear sense of institutional mission and a visible set of local priorities; and to develop appropriate local planning, evaluation, and directed resource allocation mechanisms.

The individual components of the program featured: (1) the Ohio Eminent Scholars Program, which provided matching grants for 36 endowed professorships at Ohio universities; (2) Program Excellence, which awarded funding to high-quality programs in undergraduate education, based on a statewide competition open to all public institutions; (3) the Academic Challenge Program, which provided additional funding to develop local centers of excellence in areas of strategic importance to each institution; (4) the Research Challenge Program, which provided funding to enhance research, based on a formula determined by the amount of external funds previously raised for research support at each institution; and (5) the Productivity Improvement Challenge Program, which provided categorical grants to public two-year institutions to support training and education designed to meet the needs of local business and industry.

According to NCHEMS, "the basic policy mechanism of incentive funding worked as intended; institutions did things that they would not otherwise have done . . . and for the most part these things were consistent with quality objectives." The overall findings of concerning incentive-based funding are as follows:

- The basic strategy of investing targeted, addition-to-base resources is indeed effective in changing institutional resource allocation priorities in desired directions.

- Absent explicit direction from the state, the actual impact of incentive funding mechanism depends decisively upon the institutional leadership and academic culture in place.

- Absent explicit state direction about priorities, institutional and departmental priorities will prevail.

- Absent explicit policy linkages and significant levels of investment, incentive funding will function as an "add-on" to existing state policy mechanisms.

- Different ways to structure an incentive funding approach can result in very different impacts.

- The manner in which an incentive funding approach is implemented has a significant impact on results achieved.

B. Changes in Research Across the United States

The two publications that are summarized below report that significant changes in research funding and priorities will curtail the need for researchers and cause dramatic changes in research institutions in the United States.

1. The President of the United States. The President's Council of Advisors on Science and Technology. *Renewing the Promise: Research-Intensive Universities and the Nation.* 1992.

In this report, the President's Council of Advisors on Science and Technology voices serious concerns about the nation's research-intensive universities. The council reports that:

a. The United States must continue to invest in fundamental research, but resources will not expand as rapidly as our intellectual capacity to pursue promising research opportunities. As a result, the council recommends that universities, rather than spreading resources too thinly across an array of programs, should adopt more highly selective strategies based on a realistic appraisal of the future availability of resources and a commitment to meet world-class standards in all programs that are undertaken. According to the report, this will require universities to:

- eliminate or downsize some graduate departments,
- collaborate with other academic, industrial, and governmental institutions sharing programs and facilities,
- build facilities or programs only where there are strong long-term prospects of sustaining them, and
- develop permanent institutional mechanisms for strategic planning that will balance teaching, research, and other missions that are commensurate with society's values.

It will require federal and state agencies to:

- refrain from encouraging universities to embark on new research or education programs when there is little or no long-term prospect of sustaining them, and
- refrain from developing research or education programs that would increase the net capacity of the system of research-intensive universities.

b. Research institutions should re-vitalize their efforts in undergraduate education. The report recommends that universities—while keeping tuition and educational costs from rising faster than the income of the average American family—must:

- increase direct senior faculty involvement in teaching at the undergraduate and graduate level,
- balance the contributions of teaching and interaction with students with those of research and public service in evaluating and rewarding tenure,
- place less reliance on graduate teaching assistants and ensure that they are better prepared,
- increase the involvement of undergraduates in hands-on frontier research, and
- place greater stress on educating scientists and engineers in key foreign languages.

c. At a time when public trust in universities is eroding and when expectations of what universities can do for the nation are rising faster than the resources available to meet those expectations, universities must act in ways that preserve the core values that underlie the scientific and education enterprise—free and creative pursuit of ideas and synergism between research and teaching.

d. Constraints on research and development have fueled a healthy national debate over priority setting. At the same time, the report finds that the federal government must maintain its investment in research activities. As part of this process, federal funds should be allocated through competition based on merit.

e. There should be more linkages and flow of information between universities and industry. As a result, universities and industry should exchange scientists and engineers at all levels for substantial periods of time and repeatedly throughout their careers.

f. Strong public policies must be designed to identify scientifically gifted persons at an early age and help them develop their talents no matter their circumstances. As a result, the federal government should develop programs to award a substantial number of portable undergraduate scholarships and graduate fellowships (based on merit) in science and engineering in each congressional district.

2. National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. *Reshaping the Graduate Education of Scientists and Engineers.* Washington, D.C.: National Academy Press, 1995.

This report from three influential professional bodies finds that although the demand for scientists and engineers remains strong, there is a slowdown in the growth of university positions and the United States can expect a "reduction in the demand for traditional researchers in some fields." With major industrial sectors having reshaped their research, development and business strategies to account for emerging production, service and information enterprises, there will be a significant need for "scientists and engineers who can readily adapt to continuing change." As well as changes taking place in industry, current changes in universities and government mean that all three areas of primary employment for Ph.D. scientists and engineers are experiencing simultaneous change. The approach recommended in this report is not to cap graduate enrollments, but to implement reforms at the departmental level to connect the educational experience of graduate students with the needs of the job market.

The three primary recommendations are as follows:
a. Offer a broader range of academic options, so that students will be discouraged from overspecializing. In relation to career skills, universities should supply skills desired by both academic and nonacademic employers, "especially the ability to communicate complex ideas to nonspecialists and the ability to work well in teams." In fostering versatility, financial assistance programs

for graduate students should adjust their support mechanisms to include new education/training grants to institutions and departments.

b. Provide better information and guidance to help graduate students make informed decisions about professional careers. Students should be encouraged to consider three alternative career pathways after they have met their qualifying requirements.

c. Devise a national human-resources policy for advanced scientists and engineers.

C. The Oversupply of Doctoral and Professional Programs in the United States

The following articles and publications strongly argue that there is an increasing oversupply of Ph.D. and other professional degree holders in several disciplines in the United States. Although this oversupply varies across disciplines and regions, it places the issues facing California higher education in a national perspective.

1. William F. Massy, and Charles A. Goldman. *The Production and Utilization of Science and Engineering Doctorates in the United States*. Stanford Institute for Higher Education Research, 1995.

This report, in presenting a three-part econometric model, estimates that there will be a long-term structural overproduction of doctorates in science and engineering of about 22 percent by the turn of the century, an estimate that contradicts earlier predictions of long-term shortages. Table 5.1 breaks down the estimated long-term overproduction by field, with the figures measuring overproduction as a percentage of the equilibrium number of Ph.D.s produced annually.

TABLE 5.1

Estimated Long-term Employment Gap

Field	*% Gap*	*Field*	*% Gap*
Mechanical Engineering	44	**Geoscience**	23
Electrical Engineering	41	**Economics**	23
Civil Engineering	33	**Physics**	9
Mathematics	32	**Computer Science**	4
Bioscience	28	**Psychology**	4
Chemical Engineering	26	**Chemistry**	(5)

Note: Above figures are based on conditions of the early 1990s; they do not take account of future employment increases.

As Table 5.1 reveals, the gap is largest in mechanical engineering and electrical engineering. Civil engineering, mathematics, bioscience, and chemical engineering also register gaps exceeding 25 percent, while the gaps in computer science, psychology and chemistry are virtually nonexistent.

It is important to note that these estimates do not account for short-term fluctuations, but for longer-term structural needs.

Another significant finding of the report is that "doctoral student numbers depend more on academic production needs—for example, service as research and teaching assistants—than on the labor market for the individuals holding the Ph.D.s." As a result of this, increasing university-sponsored research funding would worsen—rather than improve—Ph.D. job prospects over the long run. This is because immediate gains in faculty expansion would be overshadowed by increased oversupply of Ph.D. holders as expanded doctoral programs produce more graduates. The same is true for increases in undergraduate enrollment—a finding that is particularly significant as California's institutions of higher education gear up to serve almost 500,000 additional undergraduate students in the next decade. As doctoral programs expand in order to increase the numbers of graduate student teaching assistants, the long-term job prospects of the students, once they attain their Ph.D.'s, will most likely decline, even though short-term prospects may improve. (In a related issue, the report found that graduate program size is particularly sensitive to overall undergraduate enrollments in fields with heavy general education loads, such as economics, mathematics, physics, chemistry, psychology, and biology.)

In a finding that has implications for productivity within departments, the study reported that in the more "elite" public and private universities, those departments with larger numbers of doctoral students needed fewer faculty to meet degree-production and sponsored-research needs. In the least "elite" segments, however, "additional doctoral students are associated with larger faculty numbers."

The report also found that Ph.D. attainment by students entering graduate study in science and engineering averages 23 percent for U.S. students, 21 percent for foreign students, and 22 percent overall. Median time to degree averages about 5 years for both U.S. and foreign students.

Data for the analysis was obtained from the National Science Foundation, the National Research Council, and researcher fieldwork. The final database included some 2,100 doctoral-granting and more than 1,000 non-doctoral-granting institutions.

2. The Pew Health Professions Commission. *Critical Challenges: Revitalizing the Health Professions for the Twenty-First Century*. 1995.

In a study that has broad ramifications for health professional schools in California, the Pew Health Profession Commission reports that in the United States by the end of this century there will be a surplus of 100,000 to 150,000 physicians as the demand for specialty care shrinks, a surplus of 200,000 to 300,000 nurses as hospitals close, and a surplus of 40,000 pharmacists as the dispensing of medications becomes more automated and centralized. These surpluses in health professional workers will be generated as America's health care systems, which are in the midst of fundamental change, attempt to manage the delivery of health care in ways that will reduce costs, enhance patient and consumer satisfaction, and improve outcomes. The report finds that as "managed care" reaches 80 to 90 percent of the insured population in the United States within another decade, as many as half of the nation's hospitals will close and perhaps 60 percent of the nation's hospital beds will be lost—while there will be a massive expansion of primary health care provided through ambulatory and community settings. At the same time, according to the report, hospitals re-engineering their service delivery systems will consolidate many of the over 200 allied health professions into multi-skilled professions—a transformation that will require health professional schools to fundamentally alter the ways they "organize, structure and frame their programs of education, research and patient care."

As a result of shifting the delivery of health care from a "supply orientation" to a "demand-driven system," institutions that produce health professionals have the twin responsibility to "right-size" the health professional workforce and restructure the delivery of professional health education to match changing workforce needs. The commission's recommended levels for class sizes for various health professions are as follows:

Dentistry: Maintain the entering dental school class size at its 1993 level (4001 students).

Medicine: By 2005 reduce the size of the entering medical school class in the U.S. by 20 to 25 percent. This would mean a reduction from the 1995 class of 17,500 to an entering class size of 13,000 to 14,000 for 2005. This reduction should come, the commission reports, from closing medical schools, not reducing class size.

Nursing: Reduce the size and number of nursing education programs (1,470 basic nursing programs as of 1990) by 10 to 20 percent. These closings should come in associate and diploma degree programs, and should depend upon whether local conditions are producing and will continue to produce shortages or surpluses of educational programs.

Pharmacy: Reduce the number of pharmacy schools (75 schools and colleges in 1995) by 20 to 25 percent by the year 2005.

In relation to all of the above recommendations for reductions, the report argues that program closings should be distributed in a way that will accommodate underserved areas.

This is the third report by the commission focusing on transformations in the health care delivery system in the United States. The first report, released in 1991 and titled *Healthy America: Practitioners for 2005*, described the primary skills and attitudes that will be needed by health care providers of the 21st century. The second report, *Health Professions Education for the Future: Schools in Service to the Nation*, was published in 1993 and offered specific reform strategies for each of the health professions.

3. The Modern Language Association. *MLA Newsletter*, Winter 1995. The Modern Language Association. "Latest *Job Information List* Figures Available." *MLA Newsletter*, Spring 1996, p. 1+.

As a balance to the many reports listed above concerning overproduction of Ph.D.s in the sciences, the Modern Language Association (MLA) has likewise reported that the overproduction of doctoral recipients is no less of a problem in the humanities—at least in English and foreign languages. In its winter 1995 issues of the *MLA Newsletter*, the MLA reported that the unemployment rate for doctoral recipients in English and foreign languages hit a 10-year high in 1993-94. The study, conducted in the fall of 1994, found that 10.5 percent of the students who earned Ph.D.s in English and 10 percent of the students in foreign languages in 1993-94 were unemployed. These numbers compare to 8.6 percent and 5.8 percent 10 years ago. Job opportunity for doctoral recipients was much brighter when many of the Ph.D.s began their graduate careers. In 1986-87, the unemployment rates were only 5.3 percent in English and 3.3 percent in foreign languages.

The report also indicated that the chances of Ph.D.s finding work in government and business also appear to have worsened. In English, for instance, 7.8 percent of Ph.D.s found such work in 1993-94, compared with 15.3 percent 10 years ago.

In the spring 1996 issue of the *MLA Newsletter*, the MLA estimated that the number of positions advertised in its *Job Information List* during 1995-96 would be down six to seven percent from the number advertised in 1994-95. This represents a decrease of about 40 percent compared to the number of positions advertised in 1989-90. (The Job Information List is the primary vehicle for teaching and research positions in English and foreign languages at colleges and universities across the United States.)

D. An Example of a Doctoral Program Review in Ohio

In 1991—in the midst of the third major fiscal crisis that the State of Ohio has faced within the past twenty years—a task force was created to help resolve a problem similar to the one facing the State of California: Ohio found that since its ability to pay for higher education was much lower than in the past, it needed to find, within a fiscally constrained environment, long-term, structural solutions for meeting the needs of students seeking higher education. As a result the "Managing the Future Task Force" was formed with a primary duty to review existing doctoral programs to determine which ones were "unnecessarily duplicative." The task force did not recommend—nor did the Regents have the authority to require—the withdrawal of an institution's right to offer a degree. But the task force did recommend that the state Board of Regents have the power to determine those programs which should and those which should not continue to be funded by the state. The Regents supported this enhancement in their authority, which would effectively allow them to withdraw state subsidy from university programs considered to be unnecessarily duplicative, and legislation to that effect was signed into law in 1993.

The program review focused on doctoral programs because of their higher cost compared to other programs, because of their rapidly increasing costs, and because the Regents wanted to emphasize affordable, high-quality undergraduate education.

The Board of Regents asked the Regents Advisory Committee on Graduate Study, the state's graduate deans group, to draw up standards of viability that could be used as reference points in reviewing existing programs. The standards outlined below are not meant to be hurdles which if crossed mean that a program is successful, but they are meant to describe the general categories of analysis and help provide indications as to how decisions can be reached. They are:

- Number of graduates (a viable program should have at least ten graduates over five years).
- Number of students (a viable program should have at least an average of about 15 FTE students over five years).
- Placement of graduates (standards vary in this area, but this criterion is critical to the viability of the program).
- Faculty scholarship and research (students must work with faculty who are actively engaged in scholarship or research).
- Appropriateness of curriculum (a viable program must change its curriculum according to the changing needs of the discipline).
- Need for the program.

Since the standards included little information about how the need for the program could be determined, a second committee was established to emphasize and determine program need. With the input from campus provosts and graduate deans, the Board of Regents then convened a Committee on State Investment to recommend which academic disciplines should be reviewed, and then to recommend which specific programs areas should be continued. The 15-member committee is composed of distinguished representatives from both Ohio and the nation; areas of expertise include not only higher education, but also business, industry, publishing, medicine, law, foundations, etc. The criteria for determining which disciplines to review focused on the following:

- cost to the state
- number of programs in state vs. number in other states of similar size
- research productivity
- number of graduates and market for graduates
- service to the state

The committee selected for review disciplines that appeared to have unnecessary duplication. Those selected accounted for about 60 percent of the state subsidy. The process for review includes seven steps:

(1) universities provide self-studies of their programs;
(2) at the state level, external scholarly panels reviewed programs;
(3) programs about which concerns are expressed are asked to provide written and oral responses;
(4) the panels provide draft reports with recommendations;
(5) the universities are asked to respond to the drafts;
(6) the final panel reports are reviewed by the Committee on State Investment, with comments forwarded to the Chancellor; and
(7) the Chancellor reviews all materials and makes recommendations to the Board of Regents

The committee has divided its review of specific doctoral programs into three rounds, and panel recommendations have recently been completed for all rounds. Many programs have been recommended for discontinuance of state funding, and many others for size limitations. Final decisions on all of them have not been made, however, and estimates of the overall fiscal impact are not presently available. In relation to the first round of recommendations concerning the field of history alone, however, reductions are expected to decrease FTE students by 25.

Several incentives are offered through the Ohio process for universities to withdraw programs or consolidate them with other universities. For instance, grant funds can be used for: reinvesting in another doctoral or graduate area, shifting resources to undergraduate education, offsetting the costs of collaboration, etc. However, there have been only a few proposals for voluntary consolidation and collaboration.

Another interesting development in the Ohio process is the authority the Regents gained from the state Legislature to cap doctoral FTE—by university and by subsidy level—from 1995 to 1997. The Regents felt that these caps were needed due to the rapid shift in resources from other areas of education to doctoral programs. The Regents requested this authority while the doctoral program review process was in place.

The major themes that have emerged as a result of the doctoral review include:

- The Ph.D. is a national and international degree. Local/regional service is an important dimension in some fields, but faculty and students in Ph.D. programs must be competitive by national and international standards.

- Excellence in undergraduate education does not require a doctoral program. In a number of cases, faculty argued to the contrary, but none of the panels accepted this argument. Doctoral programs should be evaluated primarily on the basis of their contributions to advanced education and research.

- Excellence in doctoral education does not require a comprehensive doctoral/research university. Universities with limited participation in graduate education can nevertheless have doctoral programs that are competitive with the best in the nation.

- There is strong evidence that focused programs are viable and successful—in fact some are the most successful.

- The current method of funding doctoral education in Ohio, focusing entirely on the number of students in a program, appears to be substantially flawed. The Regents need to give careful and urgent consideration to a more balanced approach, one that rewards quality as well as quantity.

E. Summary of California Graduate Education

by William Chance

Executive Summary

The graduate programs offered by California public university systems must be considered comprehensive by any reasonable standard. The total number of public graduate programs approaches 1,500, of which more than 350 lead to the doctorate. More than 1,000 additional graduate programs (360 of which are doctoral) are offered in the state's accredited private institutions. Enrollments in the state's public university graduate programs rank it first in the country.

In the CSU system, student professional certification goals appear to drive the enrollment flow. Enrollments in programs leading to professional certification in education, business, public administration, social work, nursing, and engineering account for more than 60 percent of the total. In the CSU system, graduate programs are characterized by a high incidence of part-time attendance (approximately 80 percent) and a comparatively low presence of non-resident students (less than six percent).

The top six disciplines in terms of enrollments in the UC system—engineering, social sciences, physical sciences, business, English, and health professions—similarly account for more than 60 percent of the total. Full-time graduate participation in the UC system is strong. More than 95 percent of the enrollments are considered full-time. About 15 percent of the UC students are classified as non-residents.

Overall, women and minority students appear to be comparatively well represented among the graduate enrollments of California's public universities, at least in comparison with figures for other states. Women continue to be disproportionately over-represented, however, in areas traditionally attributed to them—nursing, social work, education, etc.—and disproportionately under-represented in the comparatively highly quantitative fields—engineering and the physical sciences. This pattern accords with national patterns. Proportions of minority enrollments tend to diminish as they approach the doctoral level in the UC system but do not align as closely along quantitative area lines as those of females; California may depart somewhat from trends in the national data in this regard.

California public universities offer graduate programs in 157 (Classification of Instructional Programs) CIP categories. The CSU system is represented in 130 cases; UC institutions are active in 114.

In terms of individual system graduate program inventories, education, psychology, and business administration are the most frequent listings at CSU, with programs offered at virtually each institution. The CSU system reports 108 masters and two doctoral programs in the field of education, 40 in the field of psychology, and 52 in the field of business. Other contenders for high-frequency counts for this system are the health professions (48 listings), social sciences (78 listings), and engineering (47 listings).

In the UC system, chemistry and psychology are the more numerous programs; programs in these two fields are offered at each of the nine institutions. At the doctoral level, engineering (49 programs), languages (29 programs), biological sciences (42 listings), physical sciences (31 programs), and social sciences (47 listings) are the remaining more popular fields.

Multiplicity in public university system graduate program inventories is evident and redundancy is possible. For the UC system (which has nine campuses), those graduate programs appearing with greatest frequency—i.e., in more than half of the system's institutions—are provided in Table 5.2.

TABLE 5.2

Multiplicity of Graduate Program Offerings at UC

CIP #	*Graduate Program*	*# of Campuses Offering Program*	*CIP #*	*Graduate Program*	*# of Campuses Offering Program*
11.01	Computer & Information Services	8	27.05	Math Statistics	5
13.01	Education, General	6	30.99	Multidisciplinary, Other	7
14.07	Chemical Engineering	5	38.01	Philosophy	7
14.10	Electrical Engineering	5	40.05	Chemistry	9
14.18	Materials Engineering	5	40.06	Geology	5
14.19	Mechanical Engineering	6	40.08	Physics	8
16.01	Foreign Languages & Lit.	6	42.01	Psychology	9
16.05	Germanic Languages	7	45.02	Anthropology	7
16.09	Romance Languages	7	45.06	Economics	8
23.01	English	5	45.07	Geography	6
23.03	Comparative Literature	7	45.08	History	8
26.01	Biology	6	45.10	Political Science	7
26.02	Biochemistry	6	45.11	Sociology	7
26.04	Cell & Molecular Biology	5	45.99	Other Social Sciences	5
26.06	Miscellaneous Biology	8	50.07	Fine Arts	7
26.07	Zoology	7	50.09	Music	8
27.01	Mathematics	8	52.02	Business Administration	5

Source: CPEC Integrated Postsecondary Education Data System (IPEDS) file, 1994.

In terms of productivity, about half (400) of the graduate programs in the CSU system and about a third (250) of those in UC institutions enroll less than 20 students and confer less than five degrees per year. If the two systems are seeking program economies, these are the programs to which review attention might be productively directed.

State-level procedures for the review and approval of new programs have been in place in California for many years, and they appear to be effective. These do not entail, however, arrangements for either the periodic review or continuing pruning of existing programs. Proposals for new programs normally are not accompanied with calls of quid pro quo in the form of existing program terminations and resource reallocations.

There also is no evidence of a comprehensive state-level system or institutional examination of the existing program inventories to determine if these are productive and maximally congruent with student and other social needs.

In closing, while California's graduate education enterprise is impressive, it is not perfect. Redundancy and duplication are evident, and the possibility of superfluidity is likely. While this may have been tolerable at another time, new circumstances prompt new expectations. In California, graduate education is a place to start. Initial review should center on potentially duplicate graduate programs that manifest persistent patterns of low student enrollments and graduation rates. The review should take into account such quantitative considerations as program activity in terms of student origins; enrollment levels, student-faculty ratios, average student credit load; average time to completion; graduation rates; direct and indirect costs; such cost-benefit ratios as cost per head count, cost per FTE, and cost per degree; graduate placement rates and patterns; the nature and magnitude of research components (i.e., academic or departmental research, state-funded research, and research funded with grants and contracts, including federally funded research). The review should take into account such qualitative considerations as fit with the institutional role and mission; congruence with state civic, social, cultural, and economic goals; peer ratings if appropriate; and institutional, system, and state program plans. As part of this review, consideration should be directed to the participation rates and patterns of women and minority students in graduate education programs in the state, as well as other considerations.

For further information concerning this report on California graduate education, including tables providing more detailed information about graduate program multiplicity and productivity at UC and CSU, contact The California Higher Education Policy Center, 160 West Santa Clara Street, Suite 704, San Jose, California 95113. For an immediate response, please FAX requests to 408-287-6709.

F. NRC Ratings of Doctoral Programs in California

By William Chance

California's research universities are well-represented in the National Research Council's ratings (1995) of research-doctorate programs in the United States.[84] The placement patterns are not consistent, however, and the variance is worth noting.

Within the research university sectors (public and private), the ratings may suggest institutional tiering that extends beyond that associated with system mission (i.e., beyond the tiering expected and represented by the UC research university, CSU regional university, and community college distinctions). The extremes between UC Berkeley and UC Riverside, two institutions in the same research university system, may illustrate the point. The National Research Council (NRC) rated (i.e., included) 37 of Berkeley's doctoral programs, of which 35 (94 percent) ranked in the top-ten and all (100 percent) placed in the top quartile in its respective program category. In the case of Riverside, 19 programs were rated; none placed in the top ten, and only one (five percent) ranked in its top quartile. The figures for all of the subject institutions are presented in Table 5.3.

TABLE 5.3
California University Doctoral Programs Rated by NRC

Inst.	*# Rated*	*# Top 10*	*% Top 10*	*1st Qtr*	*2nd Qtr*	*3rd Qtr*	*4th Qtr*	*% 1st Qtr*	*% 2nd Qtr*	*% 3rd Qtr*	*% 4th Qtr*
UCB	37	35	94	37	0	0	0	100	0	0	0
Stanford	37	31	83	31	5	1	0	83	13	2	1
UCSD	29	14	48	23	6	0	0	79	20	0	0
CIT	19	13	68	18	0	0	1	94	0	0	5
UCLA	35	10	28	22	12	1	0	62	34	2	0
UCSF	8	6	75	6	0	1	1	75	0	12	12
UCSB	31	4	12	10	14	4	3	32	45	12	9
UCI	20	2	10	8	12	0	0	40	60	0	0
UCSC	17	2	11	3	8	3	3	17	47	17	17
UCD	25	1	4	8	13	4	1	32	54	16	4
USC	25	1	4	6	10	7	2	24	40	28	8
UCR	19	0	0	1	9	7	2	5	47	36	10
Claremont	10	0	0	0	0	7	3	0	0	70	30

Note: CIT stands for California Institute of Technology; USC stands for the University of Southern California; and Claremont stands for Claremont Graduate School.

TABLE 5.4

California Doctoral Programs Ranked in the Top Ten by NRC

Institution	*Top Ten Appearances*
UC Berkeley	35
Stanford	31
UC San Diego	14
California Institute of Technology	13
UCLA	10
UC San Francisco	6
UC Santa Barbara	4
UC Irvine	2
UC Santa Cruz	2
UC Davis	1
USC	1
UC Riverside	0

Note: CIT stands for California Institute of Technology; USC stands for the University of Southern California; and Claremont stands for Claremont Graduate School.

Thus, if the NRC rankings point to anything, they may suggest the presence of a research university caste system in California. It would consist of two "first-tier" research universities (Berkeley and Stanford), three "second-tier" research universities [UC San Diego, the California Institute of Technology (CIT), and UCLA], one "third-tier" research university (UC San Francisco), five "fourth-tier" research universities (UC Santa Barbara, UC Irvine, UC Santa Cruz, UC Davis, and USC), and one research university (UC Riverside) that may not be a research university at all, at least one that would rank with the others.

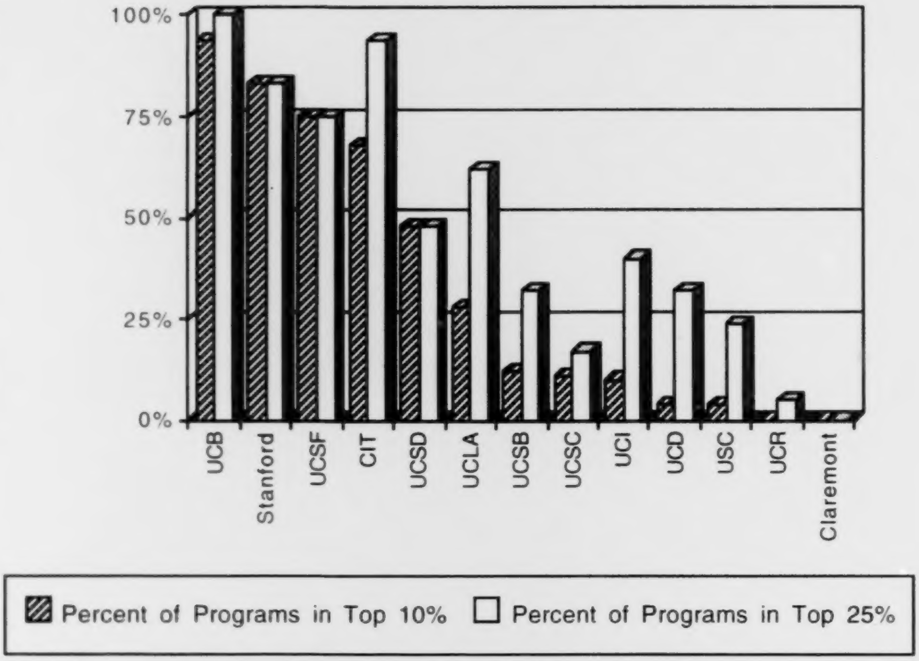
This pattern is perhaps most apparent when the number of institutional appearances in the "Top Ten" are counted (i.e., the instances in which an institution's programs rank in the top ten). These numbers are displayed in Table 5.4.

For California this may be the most striking pattern that emerges from the rankings.

Note that Table 5.1 also distributes the rated programs by NRC quartile (the NRC divided rated programs into quartiles in each program category). Because of the variations in the numbers ranked in each program area (from 26 in oceanography, where each quartile consisted of about six programs, to 194 in biochemistry and molecular biology, where each quartile consisted of about 48 programs), the patterns of quartile placement are less interesting, but as shown in Figure 5.5, these patterns do support the impressions of tiering noted.

FIGURE 5.5

California Doctoral Programs Ranked by Percentage by NRC



Note: CIT stands for California Institute of Technology; USC stands for the University of Southern California; and Claremont stands for Claremont Graduate School.

Table 5.6 lists the institutional appearances of California universities in each of the NRC's 41 program categories. The figure preceding the institutional reference is its ranking in that program category.[85] The quartile divisions also are represented on these descriptions.

TABLE 5.6

Rankings of California Research Universities by Program, as Rated by the NRC

Underlines Represent Quartile Breaks
Numbers represent ranking of Program within Category

Art History (38 programs rated)

UCB	3
UCLA	13
Stanford	14
UCSB	21

Classics (29 programs rated)

UCB	2
UCLA	9
Stanford	16
UCSB	22

Comparative Literature (44 programs rated)

UCI	8
Stanford	9
UCB	10
UCLA	16
UCSD	18
USC	23
UCR	26
UCD	38

English Lang. and Lit. (127 programs rated)

UCB	2
Stanford	6
UCLA	12
UCI	15
USC	25
UCSB	34
UCR	35
UCSD	37
UCSC	43
UCD	48
Claremont	81

French Lang. and Lit. (45 programs rated)

Stanford	6
UCB	7
UCI	10
UCLA	19
UCD	28

German Lang. and Lit. (31 programs rated)

UCB	1
Stanford	6
UCI	15
UCLA	22
UCD	23

Linguistics (41 programs rated)

Stanford	2
UCLA	3
UCB	7
UCSC	10
USC	12
UCSD	14

Music (65 programs rated)

UCB	3
Stanford	15
UCLA	18
UCSB	24
UCSD	25
USC	36
Claremont	56

Philosophy (72 programs rated)

UCB	4
UCLA	6
Stanford	7
UCSD	15
UCI	21
USC	34
UCR	39
UCSB	42
Claremont	72

Religion (38 programs rated)

UCSB	9
Stanford	19
Claremont	20
USC	32

Spanish and Portuguese Lang. and Lit. (54 programs rated)

UCB	9
UCD	14
UCI	15
UCLA	16
Stanford	17
UCSD	18
UCSB	21

Aerospace Engineering (33 programs rated)

CIT	1
Stanford	3
UCSD	10
UCLA	11

Biomedical Engineering (38 programs rated)

UCSD	2
UCSF	7
UCB	8
Stanford	12
UCD	23

Chemical Engineering (93 programs rated)

UCB	3
CIT	6
Stanford	7
UCSB	14
UCD	28
UCLA	31
USC	57

Civil Engineering (86 programs rated)

UCB	2
Stanford	3
CIT	7
UCD	16
UCLA	21
UCI	33

Electrical Engineering (126 programs rated)

Stanford	1
UCB	4
CIT	5
USC	10
UCLA	11
UCSB	19
UCSD	20
UCD	33
UCI	47

Industrial Engineering (37 programs rated)

UCB	2
Stanford	7
USC	22

Materials Science (65 programs rated)

UCB	4
Stanford	6
UCSB	8
CIT	12
UCLA	26
USC	48

Mechanical Engineering (107 programs rated)

Stanford	1
UCB	3
CIT	4
UCSD	10
UCLA	14
UCD	26
UCI	35
UCSB	39
USC	56

Astrophysics and Astronomy (33 programs rated)

CIT	1
UCB	3
UCSC	6
UCLA	16
Stanford	22

Chemistry (167 programs rated)

UCB	1
CIT	2
Stanford	4
UCLA	11
UCSD	18
UCSF	23
UCSB	33
UCI	36
USC	40
UCD	48
UCR	70
UCSC	83

Computer Sciences (107 programs rated)

Stanford	1
UCB	3
CIT	12
UCLA	14
USC	20
UCSD	23
UCI	34
UCSB	48
UCSC	50
UCD	58

Geosciences (100 programs rated)

CIT	1
UCB	3
Stanford (Geophysics)	5

Note: CIT stands for California Institute of Technology; USC stands for the University of Southern California; and Claremont stands for Claremont Graduate School.

TABLE 5.6

Rankings of California Research Universities by Program, as Rated by the NRC

Underlines Represent Quartile Breaks
Numbers represent ranking of Program within Category

UCSD	6
Stanford	10
UCLA	12
Stanford (Applied Earth Sci)	17
UCSB	20
UCSC	24
USC	28
UCD	33
UCR	58

Mathematics
(139 programs rated)

UCB	1
Stanford	6
CIT	11
UCLA	12
UCSD	17
USC	43
UCSB	49
UCSC	56
UCI	63
Claremont	74
UCR	79
UCD	83

Oceanography
(26 programs rated)

UCSD	1
Stanford	18

Physics
(147 programs rated)

UCB	4
CIT	5
Stanford	9
UCSB	10
UCLA	15
UCSD	16
UCI	33
UCSC	48
USC	50
UCD	67
UCR	69

Statistics and Biostatistics
(65 programs rated)

UCB (Statistics)	2
UCB (Biostatistics)	3
UCLA	12
UCR	40
UCSB	44

Anthropology
(69 programs rated)

UCB	3
Stanford	7
UCLA	9
UCSD	10
UCD	15
UCSB	20
56	UCR

Economics
(107 programs rated)

Stanford	4
UCB	7
UCLA	11
UCSD	16
CIT	19
UCD	38
USC	40
UCSB	49
Claremont	60
UCR	70

Geography
(36 programs rated)

UCSB	4
UCB	6
UCLA	8

History
(111 programs rated)

UCB	2
UCLA	6
Stanford	7
UCSD	26
UCSB	32
UCD	35
UCI	43
UCR	63
USC	71
Claremont	82

Political Science
(98 programs rated)

UCB	2
Stanford	5
UCLA	8
UCSD	9
UCR	32
UCSB	41
UCD	46
UCR	61
USC	62
Claremont	78

Psychology
(185 programs rated)

Stanford	1
UCLA	4
UCB	9
UCSD	10
UCI	26
USC	29
UCD	47
UCSB	51
UCSC	59
UCR	70
Claremont	132
UCSF	164

Sociology
(95 programs rated)

UCB	3
UCLA	5
Stanford	8
UCSD	22
UCSB	23
UCR	28
USC	40
UCSF	50
UCSC	53

Biochemistry and Molecular Biology
(194 programs rated)

UCSF	1
Stanford	3
UCB	4
CIT	7
UCSD	9
UCLA	14
UCD	35
USC	38
UCSC	52
UCI	53
UCSB	58
UCR	69

Cell and Devel. Biology
(179 programs rated)

UCSF	3
CIT	4
Stanford	6
UCSD	7
UCB	13
UCD	33
UCI	39
USC	49
UCR	75
UCSB	88
UCSC	92

Ecology, Evolution, and Behavior
(130 programs rated)

Stanford	1
UCD	5
UCB	8
UCLA	18
UCSD	19
UCSB	20
UCI	22
UCR	26
UCSC	63
Claremont	87
CIT	99

Molecular and General Genetics
(103 programs rated)

UCSF	2
CIT	4
Stanford	5
UCSD	6
UCB	10
UCD	42
UCR	44
UCSB	47
UCI	48
UCSC	56

Neurosciences
(102 programs rated)

UCSD	1
UCSF	4
Stanford	5
UCB	9
CIT	10
UCLA	15
UCI	21
USC	36
UCI	39
UCSC	94
UCSB	95

Pharmacology
(127 programs rated)

UCSD	3
Stanford	17
UCD	35
UCLA	41
USC	109
UCSB	119
UCSC	127

Physiology
(140 programs rated)

UCSD	2
UCLA	4
UCSF	5
Stanford	8
CIT	13
UCD	28
USC	54
UCI	68
UCSC	121
UCR	128
UCSB	137

Endnotes for Strategy Five

[84] In an earlier critique of the NRC's 740 page report, "Research-Doctorate Programs in the United States: Continuity and Change," 1995, I questioned the low level of sophistication of the methodology and noted that while the report is formidable in length, it is profoundly lacking in depth.

The NRC's choice of programs was based on three essentially undefined and unexplained considerations:

- The number of PhDs produced nationally [whatever this means].
- The number of programs training PhDs within a particular field [whatever this means].
- The average number of PhDs produced within a program [ditto].

How these applied as criteria in the report, however, is unclear, since there is no further quantification or clarification in the discussion of methodology. The researchers wished to include as many programs as possible from their 1982 study, so these also were grandfathered-in whenever possible.

They also applied a criterion euphemistically called, "robustness." Under this rubric, a field must have awarded "a minimum of about 500 degrees in about 50 programs for the years 1986 to 1990. Thus, a program in a relevant field would have had to average two conferrals per year (i.e., 500/50 = 10/5 = 2) to meet the definition of robustness.

Self-acknowledged resource limitations affected the NRC's assessment in a number of ways. Essentially, it was forced to restrict the study to five fields and 41 programs. Thus, a lot of doctoral programs and disciplines were left out.

None of the CSU programs were considered, of course, as they were excluded by definition (i.e., none are—or should be—research doctorates), as was the case with the community colleges. Substantial numbers of UC programs also were excluded. Chancellor Tien observed, for example, that "36 of Berkeley's 91 doctoral programs were included in the NRC's assessment." This is 39 percent. On the list of the excluded are programs in agriculture, natural resources, architecture, area studies, communications, education, international studies, home and family development, public administration, social work, health, and business, and all their various forms and permutations. Doctoral programs in the professions were excluded, as were interdisciplinary programs and programs in women's studies, black studies, etc.

The NRC reported but did not factor data on the institution's Carnegie Classification, research expenditures (1986-92) from the NSF FY 1992 "Survey of Scientific and Engineering Expenditures," library holdings, serials, and expenditures from the Association of Research Libraries, Association of College and Research Libraries, and Department of Education IPEDS 1992 surveys, and fall 1992 enrollments from the IPEDS fall 1992 enrollment survey.

Extant programmatic considerations not presented in the assessment include (or exclude): student origins; average credit hour loads; head count/conferral ratios; faculty/student ratios; direct/indirect costs; costs/FTE/head count; costs/degree; student costs (tuition); placement information by employment category and region; etc.

Impressions to the contrary notwithstanding, the report's rankings were based exclusively on faculty peer evaluations, "reputational assessments" derived from NRC's somewhat pretentiously entitled "National Survey of Graduate Faculty" (NSGF).

Higher education continues to rely on quality-definition processes that involve ratings by people who have little direct knowledge of what is occurring in the classrooms and laboratories or how any of this is manifest in the experiences of graduates and their employers. Presidents wonder why they cannot make their case with the public and the legislature. The continued willingness of research institutions and faculty to accept findings such as those presented in the report in an unexamined manner speaks volumes on the reasons.

[85] The number of programs represented in the NRC's program list appears in parenthesis following the program reference. The NRC attempted to avoid a simple rating system, so while the institutions are rank-ordered, they are not enumerated. Nor is the total number of institutions in each program category conveniently indicated. As a result it was necessary to count the institutions in each program category to determine the ranking and the total. This tedious process was accomplished "by hand." Some miscounting may have occurred, although spot checks revealed no instances of this. In any case, this would not have affected the rankings of institutions scoring in the top-ten. Finally, some California universities, such as Loma Linda, that appeared infrequently and only in the lower quartiles, are not shown.

BEST COPY AVAILABLE

STRATEGY SIX

ACCELERATE STUDENT LEARNING BEFORE AND DURING COLLEGE.

- High school students should have the opportunity to acquire college credit by examination, and to take college-level courses at high schools and community colleges.
- Colleges and universities should make required courses available to enable students to complete a baccalaureate degree in four years.
- Students who, without academic justification, take substantially more courses than required for graduation should pay an additional fee.

Overview for Strategy Six

The shared responsibility model asks students to contribute through better use of time and through moderate increases in student fees, as described under Strategy Four. As a result, the information in this section covers the wide-ranging issues surrounding accelerating and improving student learning—both before and during college. The section begins with a summary of an essay on learning productivity that provides an excellent introduction to the concepts covered under Strategy Six. The section then provides an analysis of the financial impact of more advanced preparation for California students. The section summarizes several examples of early enrollment programs across the United States. Finally, it provides information on advanced placement programs on campuses in California, and a summary of a tuition surcharge program in Florida.

A. Focusing on Student Learning and Productivity

D. Bruce Johnstone, University Professor at the State University of New York at Buffalo and the former chancellor of the SUNY system, argues that focusing on student learning—both in high school and in college—is the best way to address productivity concerns in higher education.[86] Rather than focusing on faculty workloads, deferred maintenance and elimination of support functions, Johnstone argues that by focusing on "learning productivity" we can accomplish much more in higher education.

Johnstone argues that productivity is defined as "cost per something," but that in higher education we have fixated too much on the "cost per" side rather than the "per something." In his model, the "per something" is learning. This perspective seeks to minimize drift of students through the academic process and to minimize lost learning and needless redundancy; it also seeks to maximize college-level learning in high schools, focused learning and the expeditious completion of college education.

There are many approaches to promoting productive learning, Johnstone argues. While this list is not exhaustive, he notes at least six examples:

- Year-round operation, which he calls a proxy for better use of student time. We need to do a better job of using the "white spaces" in the day, week, and academic year, Johnstone argues, to allow for more productive student learning.

- College-level learning in high school. The most common example of this is the use of Advanced Placement (AP) courses for credit. Other examples include the simultaneous attendance method, early matriculation opportunities, and the international baccalaureate.

- More effective advising, which can bring students into the appropriate major more quickly. Better advising will help to address the aimless wandering that many students go through as they try to decide what course of study to take.

- Higher standards of academic effort, which says to students that there are high expectations on them for both the amount and substance of their learning.

- Enhancing self-paced learning to make learning, not time, the independent variable. Students should be allowed to progress through their educational program based on the achievement of educational objectives and competencies, not simply on putting in the appropriate amount of seat time.

- Better integration of undergraduate with graduate and advanced professional learning.

The concept of learning productivity applies to all students, not just to those who are at the top of their class and are already very productive learners. "It is the very student whose learning presently is, I believe, least productive . . . whom we are trying to help in the college, trying to give more options, that most needs our help in devising ways to learn better, more, and faster."

Johnstone notes that there are many barriers to adapting the learning productivity model, including the bias of faculty members for teaching more and better (but not more cheaply) and the resistance in higher education to anything that requires changes in student and faculty behavior.

Why should California adopt a learning productivity perspective? "Learning productivity addresses access", says Johnstone, "in what I call the California mode, where only with some productivity somewhere somehow will this state and Florida, Texas, and other fast-growing states . . . maintain the historic access that they have had."

Others have already recommended that California consider some of these learning productivity measures. The California Postsecondary Education Commission (CPEC) in its 1995 report, *The Challenge of the Century*, calls on California's colleges and universities to "publicize, promote, and provide as much credit as possible for qualifying scores on such standardized tests as Advanced Placement examinations and the College Level Examination Program." Further, CPEC says that by the year 2000, all public colleges and universities "should provide students with the opportunity to demonstrate their proficiency or competence without the need to enroll in specific courses." Assessment of these competencies should be available at "no additional cost to the student."[87]

Contact: D. Bruce Johnstone, Learning Productivity Network, State University of New York at Buffalo.

B. Fiscal Impact Regarding Advanced Preparation

Table 6.1 provides fiscal data concerning the projected savings if a percentage of freshmen enroll in the California State University and University of California with one semester of college credit. The head-count projections are for regular admissions at each university, and the savings are calculated using the current marginal cost rate established by the Legislative Analyst for each university.

TABLE 6.1

Savings Calculation If a Percentage of Freshmen Enroll with One Semester of College Credit

	2000	*2001*	*2002*	*2003*	*2004*	*2005*
California State University						
CSU Head Count Projected[a]	34,372	35,596	36,713	38,158	38,981	40,067
CSU FTE 28,326	29,335	30,255	31,446	32,124	33,019	
Percent w/Half a Year	35%	40%	45%	50%	55%	60%
FTES w/Half a Year	9,914	11,734	13,615	15,723	17,668	19,812
Savings at CSU[b]	$23,466,646	$27,774,059	$32,226,308	$37,216,350	$41,820,945	$46,893,889
Funds for K-12 (20%)	$4,693,329	$5,554,812	$6,445,262	$7,443,270	$8,364,189	$9,378,778
Additional FTE at CCC[c]	2,000	2,500	3,000	3,500	4,000	4,500
FTE at CCC @ $2,500	$5,000,000	$6,250,000	$7,500,000	$8,750,000	$10,000,000	$11,250,000
Net Savings at CSU	$13,773,317	$15,969,248	$18,281,047	$21,023,080	$23,456,756	$26,265,111
University of California						
UC Head Count Projected[a]	26,907	27,952	28,461	29,165	29,334	29,797
UC FTE	24,733	25,693	26,161	26,808	26,964	27,389
Percent w/Half a Year	45%	50%	55%	60%	65%	70%
FTES w/Half a Year	11,130	12,847	14,389	16,085	17,526	19,173
Savings at UC[d]	$21,050,802	$26,242,034	$31,173,212	$36,507,772	$41,309,235	$46,623,610
Funds for K-12 (20%)	$5,262,700	$6,560,509	$7,793,303	$9,126,943	$10,327,309	$11,655,903
Additional FTE at CCC[c]	1,300	1,800	2,300	2,800	3,300	3,800
FTE at CCC @ $2,500	$3,250,000	$4,500,000	$5,750,000	$7,000,000	$8,250,000	$9,500,000
Net Savings at UC	$12,538,101	$15,181,526	$17,629,909	$20,380,829	$22,731,926	$25,467,708
TOTAL NET SAVINGS	$26,311,418	$31,150,773	$35,910,956	$41,403,909	$46,188,682	$51,732,819

[a] Head-count projections are for regular admissions.

[b] These savings are calculated using the current marginal cost rate of $4,734 established by the Legislative Analyst for CSU, times half the number of FTES identified in "FTES w/Half a Year" (one semester equivalent).

[c] Although the FTES enrolling in UC and CSU with half a year represent only one half of an FTES "diverted" to CCC, the full-year FTES is used at CCC. This could overstate the actual FTES impact on the community colleges.

[d] Currently, one fourth of UC freshmen enter with at least one quarter of college credit. Therefore, we estimate that 20% currently have the equivalent of one-half year of college credit. The savings shown above, then, are calculated using the marginal cost rate of $6,809 established by the Legislative Analyst for UC, times half the number of FTES identified in "FTES w/Half a Year" (one semester equivalent), less the estimated savings currently generated by the 20 percent who already come with college credit.

Sources: Head-count projections (for regular admissions) are published by CPEC in *A Capacity for Growth*, pp. 46, 60. Estimates for previously earned credit at UC are from S. Geiser, et al., *Academic and Administrative Mechanisms to Accelerate Time to Degree*, August 1994.

C. Examples of Early Enrollment Programs

1. Project Advance at Syracuse University

Serving annually approximately 5,000 students from 111 high schools, Project Advance at Syracuse University is the largest program in the United States where high school faculty deliver college courses in high schools. The early enrollment program has educated between 80,000 and 85,000 students since its inception in 1973. The program now operates on an annual budget of approximately $1.5 million dollars.

Students from Michigan, Massachusetts, New Jersey, New York, and Maine participate in the program. In addition to preparing students for college-level academic work, participation in Project Advance either accelerates the time-to-degree or allows students to take courses outside their major. During academic year 1995-96, the program offered between 22,000 and 23,000 credit hours. Over 475 colleges and universities recognize college credit earned in Project Advance, whether through degree credit, exemption from similar courses, or advanced placement.

High school faculty are selected through a competitive process to teach college courses in a wide range of general education and applied courses including biology, calculus, chemistry, computer engineering, economics, English, psychology, public affairs, sociology, religion and nutrition. The majority of high school faculty teaching in Project Advance have both a bachelor's and a master's degree, and have earned approximately 10 to 12 years of teaching experience. Extensive training by Syracuse University faculty occurs prior to the teaching assignment as well as during the course(s). Teachers have the opportunity to attend workshops where detailed student and teacher manuals, testing and evaluation instruments, course outlines, and record-keeping techniques are provided to insure consistency between Syracuse courses and Project Advance courses.

College-level instruction is available to Project Advance participants at a markedly lower rate than the rate charged for on-campus students of Syracuse University. Whereas on-campus fees per credit hour range from $550 to $600, the fees in Project Advance range from $60 to $66 per credit hour. For students demonstrating financial need, approximately $60,000 to $100,000 is available annually from the Project Advance budget for emergency tuition assistance. Other forms of financial aid can be obtained through interest-free tuition installment payments which Syracuse University offers, or outside scholarships from civic organizations.

Extensive evaluation of approximately 2,000 to 4,000 students annually indicates that students participating in Project Advance maintain successful collegiate academic records and achieve some level of productivity in time-to-degree. As full-time college students, former Project Advance participants earn grades as high or higher than earned in Project Advance. Overall, approximately 80 percent of these students earn a 3.0 or higher in college. Students in Project Advance exempt out of freshmen courses at competitive institutions at a high rate, indicating the quality of the program's instruction. In addition, the majority of Project Advance students experience a richer college experience: they enroll in dual majors, study abroad, and/or participate in internships.

Toward a more productive undergraduate education, the Project Advance administration has estimated that approximately 25 percent of all its participants enter college with enough credit to graduate a semester early. (The average student earns 15 units from his/her total Project Advance work.) As a result, between 10 and 15 percent of all Project Advance students graduate early from college.[88] Similarly, 94 percent of the 85,000 students who have participated over the last 23 years in the program graduate from college on-time.

Syracuse University's Project Advance has been emulated nationwide by approximately 20 institutions, including the University of Pittsburgh, the University of Kentucky, and Indiana University. Project Advance was also acknowledged in 1983 by the National Commission on Excellence in Education as an exemplary school-college program. The Carnegie Foundation for the Advancement of Teaching and the American Association for Higher Education have also awarded the program for its achievements. Dr. Franklin Wilbur, Director of Project Advance, attributes the model's success to the university's historical focus on the quality of lower-division courses. When Project Advance was first implemented in 1973, the university had developed syllabi, student and faculty manuals, auto-tutorials, and software for the majority of its lower-division courses.

Project Advance at Syracuse University has become a springboard for long-term collaborative relations between high schools and colleges and universities. From changes in governance to programs promoting access for underprivileged students, approximately twelve collaborative efforts to improve the pipeline to higher education can be traced to the meaningful relationships established between the faculties of Project Advance.

Contact: Dr. Franklin P. Wilbur, Director, Project Advance, Syracuse University, 111 Waverly Avenue, Suite 200, Syracuse, NY 13244-2320; 315-443-2404.

2. Running Start, State of Washington

The Running Start Program was created by the 1990 Legislature to expand educational options for public school students. Running Start allows 11th and 12th grade high school students to take college-level courses at the 32 community and technical colleges, for which they can earn both high school and college credits. Participation in the program can result in less time in school and lower college costs incurred by students and families. In 1994, Washington's legislature extended the program to include four-year public universities in cities where no existing community or technical college has a main campus.[89] In 1992-93, the first year of statewide operation, 3,508 high school students enrolled full or part-time at the community and technical colleges. By 1993-94, more than 5,000 Washington students were enrolled in the program. In 1994-95 participation increased 50 percent to nearly 7,500 juniors and seniors. Running Start students represent about 3 percent of the total number of full-time juniors and seniors in Washington's public high schools.

Qualified students attend the state's 32 community and technical colleges and 3 state universities free of tuition charges.[90] Transportation, books and supplies are paid by students. The reimbursement process involves colleges billing high school districts based on semester and/or quarterly full-time equivalency enrollments (FTE) of Running Start participants. High school districts, in turn, combine their enrollment with the reported Running Start enrollment and submit these total counts to the state Department of Education for reimbursement. Districts are reimbursed approximately $74 per credit for academic programs and $96 per credit for vocational programs for students participating in the program. A uniform reimbursement rate reduces accounting costs and eliminates small school district funding disputes. The K–12 districts retain seven percent of the funds for administrative overhead and student counseling. It has been estimated that the Running Start program allows the State of Washington to save up to two full years of funding for each student.

The demographic profile of Running Start participants indicates that 61 percent are female, 12.5 percent are students of color, and 48 percent work part-time while attending college. The average grade point average of participants is 2.78, which is roughly equivalent to the average for community and technical college students. Early assessments of the program have yielded encouraging feedback. In a 1992 survey, 89 percent of Running Start students said they would participate again. Students who transfer to the University of Washington after participating in Running Start tend to perform at an academically higher level than the average entering freshman, based on two key indicators: grade point average (3.13) and course load (15 credits per quarter). Based on reimbursements to high schools, the Department of Education's financial office indicated that nearly 40 percent of all Running Start participants have attended college full-time thus far in 1995-96.

As Running Start has been implemented, questions of credit equivalency and relatively lower participation by students of color, low-income students, and rural students have risen. For the former issue, the unintended reduction of course options for students who remain in high school compelled closer examination of the standard 1.0 high school credit for each five-hour college credit class. Many high schools across Washington were forced to drop honors English and mathematics when 10 to 15 of the 20 to 25 students normally enrolled opted for a similar Running Start course, which offered college credit for comparable effort. In 1994, the state Board of Education changed the ratio to equate five quarter hours or three semester hours of college work with three-quarters of a high school credit. To address the latter issue, most two-year colleges are beginning to provide assistance for books and supplies to low-income students.

A process has been established to expand the scope of Running Start in Washington. Particularly, an advisory study group has been charged by the State Board of Education to investigate the potential for high school students to be taught college-level courses at the high school campus. The rationale behind this potential expansion is to protect K–12 resources from being drained by the growth of Running Start while insuring equal access to the program for the state's lower-income students. Recommendations are due by Fall 1996.

Contact: Tom Lopp, Director of Vocational and Technical Education, Supervisor of Running Start, PO Box 47200, Olympia, WA 98504-7200; 360-753-2062.

3. The Postsecondary Enrollment Options Program in Minnesota

The state of Minnesota's Postsecondary Enrollment Options Program began in 1985. According to state law, the program is intended to "promote rigorous academic pursuits and provide a variety of options for 11th and 12th grade students by giving them an opportunity to take postsecondary classes at state expense."[91] Any 11th or 12th grade public high school student accepted by a postsecondary institution may enroll either part or full-time in nonsectarian courses or programs.[92] Eligible institutions include: the University of Minnesota and its branches, all state universities, community colleges, technical colleges, two or four-year private colleges, and degree-granting trade schools.

Through participation in Postsecondary Enrollment Options, students earn high school and college credit concurrently. Students may choose to take one or more courses up to a full-time high school load (12 quarter credits). Each high school determines the amount of credit to be awarded, but the Minnesota Department of Children, Families and Learning recommend that no more than seven quarter credits or four semester credits should be required to equal one high school credit in each subject. Grades earned through participation in the Postsecondary Enrollment Options Program are recorded on the high school transcript. Students apply for postsecondary credit for the same courses after graduating from high school, and transfer earned grades if credit is granted.

During the 1994-95 school year, 87 postsecondary campuses throughout the state enrolled high school students participating in the program. Overall, six percent of Minnesota's public school juniors and seniors took advantage of the program's benefits in 1994-95. Student participation rates vary considerably between school districts and high schools, with the average participation rate being 4.4 percent and the median rate 3.4 percent. Place-bound students were the least likely to enroll in the program during 1994-95.

Academically, students of the Postsecondary Enrollment Options program tended to perform better that regularly admitted postsecondary students. In both specific courses and overall, the program's participants earned higher grades than their peers, except at technical colleges. Students enrolled most frequently in such core courses as history, economics, political science, English, composition, and literature. Based on survey evidence from 1995, the program fulfills its mission of providing students with rigorous academic opportunities. "According to at least two-thirds of the students in our survey, postsecondary courses proceeded at a faster pace, were more in-depth, and required more homework time than secondary courses."[93]

In spring 1996, the Minnesota Legislative Auditor reviewed the Postsecondary Enrollment Options program and estimated that program participants and their parents saved about $10.9 million for postsecondary tuition, fees, books, and materials in 1993-94 (costs they would have incurred if they enrolled in postsecondary courses without the program). Over 85 percent of parents, school administrators, and students indicated that getting a head start on college credits and saving on postsecondary costs were either "important" or "very important" reasons for their participation. Fully 100 percent of students whose parents reported total family incomes below $15,000 indicated that saving money was a "very important" reason why they participated.[94]

The Legislative Auditor estimated that in 1993-94, the program cost the state about $4.5 million by increasing postsecondary education costs by $16.3 million while decreasing K–12 education expenditures $11.8 million. At the district level, the Auditor estimated that the median difference in education aid in 1993 was $14,149 among school districts where students participated in the program, for a median reduction caused by the program of 0.34 percent of the districts' total budgets.

The audit found that while most parents, postsecondary school administrators, and students are generally satisfied with the program, high school administrators expressed concern over the programs' perceived negative effects: difficulty in scheduling courses, lower participation in school activities, and lower staff morale. To these comments, the Legislative Auditor responded, "We recognize that it may have had some detrimental effects on secondary and postsecondary schools, but these are outweighed in our view by the benefits that the program has apparently brought to program participants."[95] The audit concluded by recommending better coordination between secondary and postsecondary schools.

Contact: Barbara Zohn, Minnesota Department of Children, Families and Learning, 942 Capitol Square, 550 Cedar Street, St. Paul, MN 55101-2273; 612-296-1261.

4. Massachusetts' Dual Enrollment Program

The Dual Enrollment Program in Massachusetts (DEP), initiated in 1993 as part of the Education Reform Act, allows junior and senior high school students to take college courses at any of the 19 state college, community college, or University of Massachusetts campuses. In turn, the state pays the colleges the average statewide tuition for each course taken by a high school student. Proponents of the DEP have noted that the new program offers gifted and talented students academic challenges at no cost to high schools, as well as reduces the time and costs required for earning a college degree.

Students enrolled in this program earn high school and college credit concurrently, and may attend college either part or full-time. Grades earned from the college are incorporated into the high school transcript. To qualify, public and private high school students must demonstrate the ability to benefit from college-level coursework, as indicated by a B grade point average and/or a recommendation from a high school principal, guidance counselor and/or teacher. A parent or guardian must also submit a letter of approval for their child to participate in the Dual Enrollment Program. In addition, students must meet relevant higher education admission requirements and individual course requirements at the respective public college or university. To remain eligible for dual enrollment participation, students must earn a B or better in all college-level coursework, and/or be highly recommended for continuation by either higher education or high school personnel.

From its first semester in fall 1994 through fall 1995, 1,423 Massachusetts high school students have participated in DEP. Approximately 15 percent of these students have enrolled in college courses full-time, with the average student enrolling in approximately 5.8 credits. Funded at an initial level of $473,000 in 1993, the program now receives an annual appropriation from the state of $1 million. High schools enroll their interested and qualified students beginning in May of the preceding academic year, and admission is granted contingent on availability of funds. If there is insufficient funding to cover all qualified applicants for dual enrollment, a school may but is not required to pay the costs of dual enrollment to the public institution of higher education. Similarly, a qualified applicant for dual enrollment may choose to pay the established dual enrollment costs if there is no available funding from state appropriations or school resources.

Reimbursement policies are established annually by Massachusetts' Higher Education Coordinating Council. For the 1995-96 academic year, per credit costs for DEP students enrolled at the University of Massachusetts were $155, at the State Colleges $105, and at Community Colleges $75. When lab fees are incurred, the state provides payment for these charges as well. Students are responsible for the costs associated with transportation as well as books and supplies. Summer and inter-session classes, college courses taught at the high school, and distance learning college courses are not eligible for reimbursement under the Dual Enrollment Program.

Addressing the displacement of Honors and Advanced Placement courses associated with a comparable concurrent enrollment program in Washington, Massachusetts explicitly states that Dual Enrollment is not intended to be a substitute for high school coursework. To accomplish this, the Program gives local school districts discretion in deciding whether sufficient coursework is available at the high school or whether students may enroll in college courses through the Dual Enrollment Program.

Contact: Jerry Wright, Commonwealth of Massachusetts, Executive Office of Education, Room 1401, McCormack Building, One Ashburton Place, Boston, MA 02108-1696; 617-727-1313, ext. 273.

5. Long Island University: C.W. Post's SCALE Program

Over twenty years ago, the Regents of the University of the State of New York issued a position paper concerning avoiding duplication in secondary and postsecondary curricula and providing qualified students with the opportunity to accelerate their time-to-baccalaureate degree. The Secondary Collegiate Articulated Learning Experience (SCALE) program at the C.W. Post campus of Long Island University was initiated in 1974 in response to the Regents' request.

The SCALE program allows high school seniors to concurrently enroll at C.W. Post as well as in high school. Participation in the program is contingent on meeting C.W. Post's admissions criteria, which includes maintaining a B grade point average. Once admitted, SCALE students are regarded as matriculated freshmen and thus have full use of all facilities and resources at the campus. The program serves between 1,200 and 1,400 students each semester from 32 high schools located within reasonable commuting distance from the C.W. Post campus. Among the 16 areas of study available to participating high school seniors are English, mathematics, biology, criminal justice, business law, management, marketing, the visual and performing arts, and computer science. Because of the reduced marginal cost of teaching college-level courses in the SCALE program, students are charged a reduced tuition rate. During academic year 1995-96, tuition for students in SCALE program was $69 per credit, compared to $387 per credit for traditional on-campus instruction. Financial aid is not available to SCALE participants.

Like other early enrollment programs across the country, students enrolled in the SCALE program are team-taught by high school and C.W. Post faculty. While high school faculty maintain primary teaching responsibility, college faculty are responsible for developing and coordinating each SCALE course. In the design of the course outline and assessments and the selection of texts, members of both faculty collaborate to insure that courses offered through SCALE are comparable to those taught on the C.W. Post campus. SCALE Director Lori Andrews notes that with academic departments at both the high school and college independently assigning faculty time, operating costs are shared across jurisdictions and are thus not easily quantified.

Contact: Lori Andrews, Director for Seminars, Conferences and Contract Programs, Long Island University-C.W. Post Campus, Brookville, NY 11548; 516-299-2211.

6. California State University

Under an umbrella program called the Direct Enhancement of Learning through Technology Assistance (DELTA), the California State University system offers the California Young Scholar Project, which provides colleges courses to students in high school.

PolyNet Young Scholar Program (based out of Cal Poly Pomona)

This program was created in 1985 by Dr. Robert Threlkeld, with a staff of two and a network of eight local high schools receiving live televised university classes through the Young Scholar Program. Since this program began in 1985, over 5,750 high school students have enrolled in televised college classes.

The Young Scholar Program has provided the high school students with :

- Transferable university credit for each course (4 credit courses given);
- A chance to explore career opportunities;
- The opportunity to begin college education from their high school library; and
- Substantial cost savings (currently four dollars per student per semester).

Three courses are offered each quarter to students, who can enroll in as many as they choose. There is no application fee to enter the program, and students are charged four dollars per quarter (excluding the cost of textbooks), which is paid to Cal Poly Pomona. The average cost for a textbook is $45. The classes are transmitted daily to each participating high school at 7 a.m., 2 p.m. and 3 p.m. Students view the courses from a designated location at school (such as a library) and communicate with their professor by using a telephone microphone system. Testing is done at the high schools and homework is mailed directly to Cal Poly Pomona.

In order to apply for the Young Scholar Program, a student must:

- Attend a participating high school;
- Be either a junior or a senior;
- Have at least a 3.0 grade point average (GPA), exclusive of their freshman year;
- Be recommended by a guidance counselor or principal; and
- Apply and be accepted to Cal Poly Pomona through the Young Scholar Program.

Their are currently 14 districts (36 high schools) participating in the Young Scholar Program. The first high school in a district to enroll in the program pays $1,000 per year and each additional high school pays $750 per year to Cal Poly Pomona. There is no limit to the number of students who can enroll per high school.

California Young Scholar Program (CYSP)

Cal Poly Pomona, in conjunction with its partner campuses, proposed and adapted a pilot program under project DELTA in 1994 which offered college credit courses to 25 rural high schools throughout California. Other campuses in conjunction with this project were: California State University, Chico; California State University, Dominiguez Hills; California State University, Sacramento; and California State University, Stanislaus.

Each campus took responsibility for offering one course and a sixth course was co-taught by faculty from all five campuses. This program targeted underserved, academically talented rural high school students. By the spring of 1995, 174 students had completed classes through the Young Scholar Program, earning university credit for the courses taken.

Each campus was given $25,000 from the California State University to support their Young Scholar course. The campus selection criteria for this program were:

- Degree of school support for the program;
- Availability of necessary technology;
- Geography and economic base of the area;
- Cable TV access to higher education;
- Current level of advanced courses at the school;
- Size of school; and
- Equal geographic distribution of schools throughout the state.

The funding for the Young Scholar Program was exhausted in spring of 1995. However, Cal Poly Pomona has agreed to offer one course per quarter during the 1995-96 school year to any participating high schools interested in continuing the program. This program is in addition to the PolyNet Young Scholar Program offered at Cal Poly Pomona. Twelve high schools have signed up for the 1995-96 school year and have agreed to pay $500 per class to Cal Poly Pomona.

Contacts: (1) Edward McAleer, Dean of Extended Education, The California State University, 400 Golden Shore, Long Beach, CA 90802-4275; 310-985-2500; and (2) Robert Threlkeld, Dean, Academic Innovation Center, California State University, Fresno, 5241 North Maple Avenue, Fresno, CA 93740; 209-278-2058.

Sources: (1) *Delta Project: Abstracts of Funded Projects*, Commission on Learning Resources and Instructional Technology, California State University, December 1994; and (2) *A Review of the California State University's California Young Scholar's Program*, Western Cooperative for Educational Telecommunications, Western Interstate Commission for Higher Education (WICHE), July 1995.

D. Advanced Placement In California

The academic preparation of undergraduates is an important factor in the cost of higher education. While an underprepared student often requires remedial coursework that can be costly to the institution, a student who has successfully completed some college-level work in high school—or can earn credit for successfully "testing out" of a course—can save that institution money.

Advanced Placement (AP), which is comprised of 29 college-level courses in 16 subjects, is the most prevalent means of earning college credit while still in high school. According to the College Board, which sponsors the program, about 66 percent of California's high schools offer some AP exams to their students.[96] The most popular exams among California students are U.S. history, English literature and composition and calculus.

Despite declines in public college enrollments, both AP usage rates and passing rates among California high school students have increased in the last few years. Since 1986, the number of AP test takers in California has nearly doubled. The percentage of high school graduates taking AP exams has increased by more than 65 percent between 1986 and 1994.[97] In 1995, 67,678 students took 108,737 AP exams, with 63.2 percent of these exams earning passing scores of three or better (U.S. passing average is 60 percent). There was a 17 percent increase in the number of AP exams per 1,000 11th and 12th graders in California between 1994 and 1995.

AP Polices at Specific Campuses

The AP policies at three campuses of the University of California (UC Berkeley, UCLA, and UC Santa Barbara) and three campuses of the California State University (San Jose State, Cal Poly San Luis Obispo, and Sonoma State) were examined to determine the extent to which advanced placement credit is accepted. Examination included review of 1995-96 course catalogs as well as telephone calls to campus administrative offices. All of the universities in this sample require a passing score of three (out of five) on AP examinations for credit, though most vary applicability of AP credit based on scoring. For example, a score of three on an exam may earn "unassigned" or elective units only, while a score of four or five may count as an equivalent college course and/or may fulfill a general education or major requirement. (In the case of Santa Barbara, scores of three, four and five earn two, four, and eight units, respectively.)

In addition, there was slight variability between the two segments on credit value for a given exam, with the University of California offering a maximum of eight quarter (5.3 semester) units and California State University offering a maximum of nine quarter (six semester) units per exam, depending on the student's score. However, none of the colleges placed restrictions on the number of courses students could take for credit.

UC Berkeley

With 3,901 students earning credit for 13,470 exams, UC Berkeley was ranked first nationally in the number of AP courses it received in 1994-95 from incoming students. Ironically, as of this year, the College of Letters and Sciences has radically scaled back its acceptance of AP courses. With the exception of the basic-skills requirements—which includes reading and composition, quantitative reasoning and foreign language—AP courses can no longer be used to fulfill the college's breadth requirements. As a result of the Academic Senate's curriculum revision last year, the core breadth—a seven-course cluster covering areas such as history, art and philosophy—must be taken at the university, AP equivalents notwithstanding. Currently, if a student entering UC Berkeley has passed AP exams in history, art and biology, for example, these exams only earn *unassigned* semester credits. While "unassigned" units boost a student's overall number of units, it fulfills no particular requirement, and therefore can be used only where students have discrepancy over their academic program. Most will probably be used in the electives slot.

UCLA

UCLA is ranked second in the number of AP courses it received by incoming students (12,411), but first in the number of students who earn AP credit (4,101). Unlike Berkeley, UCLA's course catalog includes a section on AP and a chart breaking down the unit values and general-education applicability of AP courses. UCLA accepts a number of AP courses (from basics such as calculus, English and foreign languages to art, music and psychology), which can be applied for credit (2, 4 or 8 quarter units) and can be used to fulfill general-education requirements, depending on the subject and the examination score earned.

UC Santa Barbara

The UC Santa Barbara 1995-96 course catalog includes a section on AP, as well as a chart including the unit value of test and their applicability to the school general-education requirements. Comparable to UCLA, UCSB accepts a number of AP courses, which, depending on the subject and the examination score, earns variable credit (2, 4 or 8 quarter units) and can be used to fulfill the school's "A-G" general-education requirements. There is no limit to the number of AP courses that can be used for college credit.

Cal Poly San Luis Obispo

Cal Poly's course catalog has a paragraph on AP, but does not contain a breakdown of specific courses accepted for credit or their application to general-education requirements. (Although this information is available through the admissions office, administrators said that they encourage students to get it through their high schools). Comparably to UCLA and UC Santa Barbara, San Luis Obispo accepts a number of AP courses for credit (3, 6 and 9 quarter units) and for fulfillment of general-education requirements. There is no limit to the number of AP courses that can be used for college credit.

San Jose State

The San Jose State course catalog contains a paragraph on AP, but does not include specific breakdowns on the applicability of AP courses. (The catalogue notes that specific information can be obtained from the testing office, whose location on campus is also included.) San Jose State offers credit for a number of AP courses, comparable to that of Cal Poly, UCLA and UC Santa Barbara. There is no limit to the number of AP courses that can be used for college credit.

Sonoma State

Like the other CSU campuses, the Sonoma State course catalog includes a paragraph on AP, but does not include specific course breakdowns. Based on inquiries to several administrative units, including the admissions office and testing office, there appears to be no specific list of AP courses accepted for credit. An administrator in the admissions office said Sonoma grants credit (6 semester units) to all CSU-approved AP courses, and that these courses can be used to fulfill general education requirements, as applicable. There is no limit to the number of AP courses that can be used for college credit, according to the admissions office.

Summary

With the exception of UC Berkeley, the universities examined appear to be fairly flexible in their acceptance of AP courses. According to their general catalogs, however, AP policies at the universities surveyed are poorly advertised to entering students. Only two of the six universities surveyed—UCLA and UC Santa Barbara—included listings of accepted AP courses in their catalogs, while none made their sections on AP (in most cases, a three-sentence paragraph) very prominent. In the worst cases, the UC Berkeley course catalog did not dedicate any space to AP specifically (the College of Letters and Science's *Guide to Earning Your Degree* does, however), and Sonoma State was unable to provide a listing of accepted AP courses upon request.

E. Example of a Tuition Surcharge Program

Florida has recently called for a tuition surcharge for students who take an excessive number of courses above and beyond that which their degrees require. The Florida Board of Regents agreed to charge students at least 25 percent more ($9) for credits beyond 138 credit hours (based on an average requirement of 120 hours per degree). Credits earned during summer session, or through the Advanced Placement or College Level Examination Program would be exempt from a student's total. Exceptions can be made for special circumstances such as double majors or high degree requirement majors such as engineering. Individual institutions would also be able to lower the excess credit threshold (to say ten percent above the 120 credit hours).

The tuition surcharge was proposed following the passage of legislation last year that called for colleges and universities to limit their degree requirements to 120 credit hours (60 hours for an associates degree). A legislative study found that state university students averaged 24 credit hours beyond their degree requirements. In order to provide access for a greater number of high school students, the legislature called on the Board of Regents to develop a plan that would reduce the number of excess credit hours per student.

Endnotes for Strategy Six

[86] This information is summarized from a presentation given by D. Bruce Johnstone at the national conference of the American Association for Higher Education on March 18, 1996, in Chicago, Illinois.

[87] California Postsecondary Education Commission, *The Challenge of the Century* (Sacramento, CA, 1995).

[88] Graduating early from college is defined by the Project Advance Program as graduating in fewer years than required by the student's general education and major curriculum, typically four or five years.

[89] These campuses are: Washington State University at Pullman, Eastern Washington University at Cheney, and Central Washington University at Ellensburg.

[90] To participate in Running Start at most colleges, students must pass a standardized test to determine whether they have the skills needed to succeed at college.

[91] Minnesota Statute §123.3514.

[92] Students are also eligible if they attend an American Indian-controlled school recognized by the state through a tribal contract.

[93] "Postsecondary Enrollment Options Program," Program Evaluation Division, Office of the Legislative Auditor, State of Minnesota, March 1995, 96-05, p. 71-71.

[94] Ibid., p. 56-57.

[95] Ibid., p. xvii.

[96] *Advanced Placement Program: Statistical Tables 1994-95*, The College Entrance Examination Board and Educational Testing Service. Although California ranks significantly above the national average of 50 percent, a number of states have higher rates. In the District of Columbia, for example, 100 percent of the high schools offered AP in 1995, while over 70 percent of high schools in Connecticut, Massachusetts, New York, New Jersey, Rhode Island, South Carolina, and Utah offered AP According to California Department of Education and College Board officials, rates are relatively high because implementing Advance Placement requires little resource commitment from schools.

[97] California Postsecondary Education Commission, *Higher Education Performance Report*, 1995, p. 40.

STRATEGY SEVEN

ESTABLISH AN INCENTIVE FUND TO ENCOURAGE COST-EFFECTIVE USE OF ELECTRONIC TECHNOLOGY FOR INSTRUCTION.

Overview for Strategy Seven

In order to encourage and support innovative use of technology, California should establish an incentive program that provides technological grants on a competitive basis to individuals, academic units or institutions. The materials in this section of this Resource Manual are provided as a context for those interested in using technology in innovative ways. The section begins with a summary of the Stanford Roundtable discussion on technology's role in restructuring higher education. This section then provides summaries of several efforts across the country to use technology in innovative ways to increase access and productivity or to restructure academic work. This section then provides estimates from the Commission on Innovation concerning cost savings from distance learning at the California Community Colleges, and a summary of an article that-provides evidence of recent drastic increases in the use of technology in colleges and universities.

A. The Stanford Roundtable on Technology

"Leveraged Learning: Technology's Role in Restructuring Higher Education." Technology and Restructuring Roundtable. Palo Alto: Stanford Forum for Higher Education, 1995.

The Stanford Forum for Higher Education Futures convened leaders in education, business, public policy, and philanthropy to explore technology's impact on academic processes, costs, and restructuring. This roundtable of leaders met in the spring of 1995 and sought to address three primary questions: (1) How will information technology impact academic processes? (2) How will these changes impact faculty roles and responsibilities? (3) How will information technology impact the cost of higher education?

The roundtable opened with a discussion about what should constitute academic change in higher education and how technology could be used to achieve such change. One participant noted the difficulty of initiating change in higher education: "We are in the business of 'maximizing monks'—providing colleagues and ensuring 'the persistence of the faith,' as it were. Accordingly, we have pre-sold our revenue stream in faculty compensation. That's why we don't have the money for planning change. We need to transform the transactional base of the enterprise." Some participants from the faculty, pointing out the success of American higher education, disagreed that minimum rather than significant change was needed. Most others, believing there is an imperative for change, debated whether reforms should "simply reshape and expand instructional delivery—taking full advantage of the new digital technologies available—or whether they should overhaul the basic content and structure of curricula."

In addressing the three primary roundtable questions, participants believed that technology would play a role in changing academic processes, but cautioned that "technology's mere availability should not be cause alone to restructure. Rather, institutional threats and opportunities should drive change." Most roundtable members believed that technology's greatest potential in instruction would fall in the area of "codified knowledge, the transmission of facts, theories, and the development of cognitive skills." Educators stressed that it is important that technology be used to "enhance a student's set of learning tools and isn't simply used to 'replace lecturers on stage by talking heads on video.'" Participants asserted that education delivered exclusively through electronic means would most appeal to adult learners seeking specific knowledge and certification. Roundtable members concluded, "Overall, participants believed that the convenience and flexibility technology offers combined with its potential to reduce costs and improve educational quality guarantee its broader penetration of teaching and learning processes in the future."

When considering how technology might change faculty roles, most participants believed that the integration of technology would help faculty spend less time preparing and lecturing and more time managing the process of education. Furthermore, some participants stated that "para-faculty" and other instructional technologies will allow faculty more time to focus on tasks that "provide greater comparative value." The essential role and value that faculty add that cannot be replaced by technology, but enhanced through more free time from teaching "codified knowledge," is the faculty member's ability to convey knowledge such as "describing context and relevance, helping students interpret what they are learning, and demonstrating from personal experience how a practitioner approaches the challenges in his or her discipline—in short, acting in the role of master to apprentice."

When addressing questions related to the cost of technology, participants were fairly optimistic that "technology would offer many opportunities to revamp cost structures and gain efficiencies without sacrificing educational quality." An example of how technology might change cost structures was investment in libraries; the increasing practice of on-line texts and journals reduce the costs of purchasing publications. Others cited the well-known case of Rensselaer Polytechnic Institute (RPI), which has reduced the time students spend in science and math laboratories through the introduction of "studio" experiences via technology. Student learning has not been sacrificed in the change and student satisfaction has been greatly enhanced. Cost savings to the institution came through reduced investment in laboratories and reducing student time in the laboratory situation. Another roundtable participant proposed that an institutional consortium be initiated that would develop appropriate courseware for use in introductory courses that tend to be large in many institutions. Another participant suggested that members to the consortium commit resources from their instructional budgets as a sign of institutional commitment.

The roundtable summary stated, "Institutions that neglect technology will run the risk in the future of being marginalized. . . " One roundtable participant noted that members of the academy seemed unconcerned about the potential of technology. "Ironically," he said, "the same faculty members who are fighting now against any substitution of information technology for their labors may find themselves blind-sided down the road by a much greater force that simply eliminates their institution altogether."

B. Examples of Increased Access or Productivity Through Technology

1. Coastline Community College

Since 1976, Coastline Community College has been offering telecourses to students. Each semester the college offers about 30 to 33 telecourses, all transferable to the University of California or California State University. Students view these courses either through a local cable station or the Coast District's PBS station (KOCE-TV, Channel 50). Videocassettes are also available to view at home or in training sites or learning centers around the area.

The cost to enroll in a telecourse is the same as any other community college course, $13 per unit. Currently, about 3,500 to 4,500 students enroll each semester in Coastline Community College's telecourses. The total enrollment for the campus is approximately 12,000 to 13,000 students.

All of the live telecourses offered through Coastline Community College are taught by Coastline faculty, unless the course is sent via satellite from California State University at Dominguez Hills in which the course would be taught by CSU Dominguez Hills faculty. Other courses that are prerecorded in a studio (produced similar to a movie) have on-site faculty who mange the course but do not teach it on video. The on-site faculty manage the course by answering comments from students as well as attending mid-term and final review sessions for the course they manage.

Students who choose to view the courses by video are given the name of the on-site faculty member who can assist them with questions or comments. The video cost is in addition to the cost of the course. There has been no indication that students who take the telecourses—as opposed to students who take the traditional on campus courses—are more likely to transfer to the University of California or California State University. The retention rate is about the same for telecourse students as it is for students who take courses on campus.

Coastline does not offer an entire associate degree program from telecourses, but plans on having a degree program available by spring 1997. There has not been any cost analysis on these courses since the program began in 1976.

Contact: Joanne Phelps, Staff Assistant, Office of Instruction, Coastline Community College, 11460 Warner Avenue, Fountain Valley, CA 92708-2597; 714-241-6140.

2. Mind Extension University

Launched in 1987, Mind Extension University (ME/U) is a distributor of educational programming through distance education via cable television, videotapes, telephones, and computers nationwide. ME/U is the nation's only basic cable television network dedicated to distance education. Jones Education Network is the parent company of ME/U, headquartered in Englewood, CO.

With more than 30 nationally accredited colleges and universities, ME/U offers a variety of degree programs and personal development courses. The universities affiliated with ME/U offer two-year associate, bachelors, and masters degrees in various fields such as management, business, social science, nursing, animal science, and industry. ME/U is not a university, but used as an intermediary between the colleges and the students. ME/U does not receive state support for its services.

ME/U offers: a master in business communication from International University College; a master of arts in education and human development with a major in educational technology leadership from the George Washington University; and an MBA/MPA from the University of Colorado/Colorado Springs. Undergraduate degrees from ME/U include: an associate of arts from Seattle Central Community College; an associate of arts from Colorado Electronic Community College; a bachelor of science in nursing from California State University, Dominiguez Hills; a bachelor of science in human resources with a major in hotel, restaurant and instructional management from the University of Delaware; a bachelor of arts in business communication from International University College; a bachelor's degree in management from the University of Maryland, College Park; a bachelor of arts in social sciences from Washington State University; a bachelor of science in interdisciplinary social science; and a bachelor of science in animal sciences and industry from Kansas State University.

ME/U currently serves approximately 5,000 students in degree programs, and enrolls 35,000 to 40,000 students in single courses. ME/U cable services are available to 25 million households in more than 8,500 communities. Approximately four million households in California have access to ME/U cable services. Students send all information to ME/U (application forms, enrollment information)—just as they would any other college or university—to register for certain courses and/or programs. Any tuition fee for courses and/or course material is sent directly to ME/U. Student fees are based on host campuses' tuition schedule.

Courses taken through ME/U contain the same curricula as on-campus courses. Tests for courses are administered by proctors in an accessible location (community library, office, etc.) Papers are sent to the professor by fax or through the mail. ME/U students also communicate with their professors and classmates via e-mail, telephone, and/or bulletin board. Class size varies from 30 to 70 students.

Each college or university receives the FTE student head count for ME/U enrollments, depending on which college or university the student attends.

Both California State University, Dominguez Hills, and Coastline Community College participate in ME/U. Cal State Dominguez Hills has offered a bachelor's degree in nursing through ME/U since fall 1994. It also offers bachelor's and master's degrees in nursing statewide, which it has offered for 14 years. The statewide program has never been an on-campus program. It uses thirteen offices statewide, and students are required to attend the classes at these designated offices. Students who do not attend classes statewide and choose to use ME/U are charged ME/U prices, regardless of whether they live in California. This national program offered through ME/U currently enrolls approximately 200 students.

Cost comparisons between ME/U and CSU for the nursing program are provided in Table 7.1.

TABLE 7.1

Cost Comparison Between ME/U and CSU

	ME/U	***CSU Nursing Program***
Application or Registration Fee	$25/one time fee	$55.00
Tuition	$199.00/per unit	$459.00 per unit for 1-6 units $792.00 per unit after 6 units
Other Fees	Bulletin Board Fee (No Amount Provided)	$66.00

Contacts: (1) Jeff Baumbgartner, Mind Extension University, Inc., 9697 East Mineral Avenue, Post Office Box 3309, Englewood, CO 80155-3309; 303-792-3111; and (2) Kathleen Johnston, Professor and Coordinator of Development, Division of Nursing, California State University, Dominiguez Hills, 1000 East Victoria Street, Carson, CA 90747; 310-516-3300.

3. The Annenberg Project: New Pathways to a Degree Program

The New Pathways to a Degree initiative of the Annenberg/CPB Project provided $1.5 million to fund seven projects designed to extend educational opportunity to additional learners. New majority learners were defined as students with jobs, home responsibilities, busy schedules, and other life circumstances which made it extremely difficult for them to attend college in conventional ways.

New Pathways to a Degree encouraged post-secondary institutions to develop degree programs to serve students who might not otherwise complete a degree or even enroll in a higher education course. The seven projects selected for funding were diverse in scope and in the ways they approached this common goal.

After the projects were evaluated, the most important findings related to student and faculty outcomes included: student performance was unaffected (students in these programs performed as well as students on-campus); faculty were able to build strong leadership roles (faculty became part of a team responsible for developing courses); and faculty were able to rethink how they communicated to students (applying teaching techniques that they learned from their technology courses and applying them to their face-to-face courses).

Two of the most promising programs using technology to expand access and educational opportunity are listed below.

a. The Maturing of Distance Education, Rochester Institute of Technology

For the past ten years, the Rochester Institute of Technology (RIT) has been serving thousands of students with both credit and noncredit programs through distance education. RIT presently serves 4,200 part-time students through evening, Saturday, and day-long courses—using an alternate Saturday weekend program. The results of this outreach effort include students from 21 states outside New York.

Beginning in 1991, RIT, with assistance from the Annenberg Project, was able to offer an entire degree program through technology: a bachelor in science degree in applied arts and science from the College of Continuing Education. Before RIT received the grant by the Annenberg Project, students were able to take lower division courses by using distance education but all upper division courses needed to be taken on campus. The upper division courses (worth 40 credits) were made available using the grant from the Annenberg Project. The goal of the project is to offer the entire degree via technology. The different types of technological vehicles that RIT uses for distance education programs include:

- Video available to students to be broadcast over a local PBS affiliate or local cable program, or by rental.
- Audio graphics available via fax machines, telewriters, or picture phones.
- Computing available through electronic mail, conferencing, on-line testing, or access to campus resources such as the library.

Students may take these courses at home or at work. Although RIT originally established site locations at local community colleges and education centers, they discontinued them because none of the sites were being used. There are two probable reasons for this. The first is that RIT is an expensive college and investing money in a computer is not seen as an extravagant cost. The second reason is that the majority of the RIT students are working professionals who already have access to a computer from home or out of their office. In addition, RIT does have financial aid and if a student is unable to afford a computer, RIT will send him or her one.

Table 7.2 displays information concerning RIT tuition.

TABLE 7.2

RIT Tuition Charges

	Part-Time *(campus evening or distance education)*	***Full-Time*** *(12-18 units)*
Undergraduate, Lower	$211 per unit	$350 per unit
Undergraduate, Upper	$231 per unit	$350 per unit
Graduate	$458 per unit	$458 per unit

Since this program began, enrollment has increased to more than 10,000 students, including undergraduate and graduate students. Since courses are not specified on transcripts as distance courses, and since students can take a few distance courses while earning their degrees, an estimate of how many students who have earned a degree through distance learning is difficult to determine.

RIT has not had any problems with library resources. Any resources not available to distant students are made available on-line to the students. Students are able to bring up the information and access the material on a computer reserve system. The campus still uses the mail system as a way to send students requested information or bookstore material.

Since RIT began offering the entire degree program through distance education in 1991, they have expanded to include six undergraduate/graduate degree programs through distance education. In addition, a student may choose from seven certificate programs offered through distance education. Distance education has become part of the mission of RIT.

b. New Life Through Adversity, Oregon State System of Higher Education

The purpose of this program has been to establish a higher education system in Oregon which would be accessible to every qualified student even though the state could not build additional campuses. The budget crunch in Oregon left the state in need to reexamine its means of educating the student population without cutting enrollment. The grantee of this project was the Oregon State System of Higher Education (OSSHE).

For each college or university under its jurisdiction, OSSHE has provided students with educational opportunity to receive an undergraduate degree via technology. Many programs have been offered at unconventional times—such as during early mornings, noon hours, evenings, and weekends—but one of the best ways Oregon has been able to extend educational opportunity to areas without campus access has been through the use of ED-NET.

In 1989, the legislature authorized OSSHE to use a technology foundation known as ED-NET. ED-NET consists of three networks which enable students to attend courses toward a degree program at several statewide site locations (these could be other campuses, community colleges or community centers). These networks consist of:

- Satellite video, conventional one-way networks (using two channels),
- Compressed video networks, two-way networks (up to thirty channels), and
- Database networks, known as COMPASS.

When the program began, ED-NET software was only offered in 16 courses. Currently, ED-NET technology is offered in 137 courses. Enrollment has risen to approximately 2,000 students since the courses were first offered in 1990. The majority of the students taking courses through ED-NET are older than average students, working professionals, place-bound, and inaccessible to a campus.

In addition to the ED-NET system, the Oregon State System of Higher Education has used funding from the Annenberg Project for the following redevelopment of the state's higher education system:

- Building new alliances between institutions of the Oregon State System of Higher Education and Oregon's Community Colleges;
- Moving toward interstate cooperation; and
- Developing follow-up in relation to other professional networks (other than ED-NET).

Since students may use ED-NET partially or fully in getting their degrees, it is difficult to determine how many students have earned a degree through the ED-NET system.

Contacts: (1) Sally M. Johnstone, Director, Western Cooperative for Educational Telecommunications, Western Interstate Commission for Higher Education, PO Drawer P, Boulder, CO 80301; 303-541-0232; (2) Susan Rogers; Director, Education Technology Center, Rochester Institute of Technology, 1 Lomb Memorial Drive, Rochester, NY 14623; 716-474-5166; (3) Jon Root, Director, Communications Media Center, Oregon State University, Corvallis, OR 97331; 503-727-2121.

Sources: (1) *New Pathways to a Degree: Technology Opens the College*, Western Interstate Commission for Higher Education, July 1994; and (2) *New Pathways to a Degree: Seven Technology Stories*, Western Interstate Commission for Higher Education, July 1994.

4. Distance Education: California State University, Chico

In 1980, California State University at Chico began delivering distance learning by microwave to students in its service area. This delivery system is known as the Instructional Television for Students (ITFS) program, which broadcasts credit courses to 16 off-campus learning centers in northern California. This program allows students to remain in their own community, retain employment and complete a college program or degree without coming to the Chico campus.

Presently, the ITFS program offers a comprehensive schedule which includes 50 credit-bearing, degree related and certificate courses each academic year. These courses run from 8 a.m. to 10 p.m. Mondays through Thursdays and from 8 a.m. to 4 p.m. on Fridays. Enrollments average about 414 students per semester, and approximately 12,000 students have enrolled since the program began in 1980. These courses are taught by about 215 different faculty. Programs include a bachelor's of science in social sciences, sociology and liberal studies. Minors in selective programs are available as well.

In 1984, Cal State Chico began offering a masters of science in computer science via interactive satellite technology. By spring 1994, 163 classes had been taught by 22 different faculty, totaling 3,652 off-campus enrollments for this specific program.

In August 1995, Cal State Chico was awarded a grant by the U.S. National Telecommunications Facilitated Programs Administration under the Public Telecommunications Facilities Program (NTIA/PTFP) to purchase satellite equipment for upgrading and expanding the current instructional television student program.

In November 1995, Cal State's Commission on the Extended University and the Commission on Telecommunication Infrastructure approved funding for the California State University Satellite Network (CSU-SAT). This funding of $2 million will enable the CSU system to operate two satellite channels for a five-year period.

Although CSU-SAT will be available to the entire CSU system, Cal State Chico's Instructional Television for Students (ITFS) schedule will occupy a significant block of the Monday-through-Friday time on one of the channels. Other broadcast campuses will have access to Cal State Chico's courses at those scheduled times.

CSU-SAT is expanding to include a total of 41 sites around the northern part of the state. Nine other campuses have indicated they will start sending out courses through the satellite TV system. Cal State Chico has been planning about $400,000 worth of improvements for this program on their own, complementing the additional $2 million provided over the next five years from California State University.

Contact: Ralph Meuter, Dean of Extended University and Regional Programs, Cal State Chico, 400 West First Street, Chico, CA 95929-1050; 916-898-6105.

5. Washington State University's Extended Degree Program

Washington State's Extended Degree Program (EDP) allows students who have earned an associate degree of arts or sciences (or the equivalent number of approved credits) to earn a bachelor of arts in social sciences from Washington State University (WSU)—delivered entirely by distance education technologies. It is the same interdisciplinary degree that on-campus students receive: a general studies, liberal arts degree. Requirements for completing the degree are the same as those for completing degrees on campus. EDP, which began in 1991, served 85 students at four sites during that year. By August 1994, 402 students at 22 sites were served by the program. More than three-fourths of the EDP students are women, and the average age of all students is 38 years. More than 80 percent identify themselves as Caucasian.

During its pilot phase, several cost-related observations were made. For one, the initial investment costs are steep. WSU received a $300,000, three-year grant from the US West Foundation to start the EDP. It was also observed that while the potential to be self-sustaining could not be realized until the program was more established, costs savings for students were realized in the short-term. New personnel and retraining of existing personnel needed to occur, and effective student support services were expensive. In addition, course development and implementation as well as marketing to rural areas had special costs. Its second year assessment asserted, "While distance education programs provide an efficient way to increase access to higher education to a widely dispersed audience, it is not an inexpensive solution."

Students are eligible for admission to the program if they have completed at least 27 semester or 40 quarter credits of transferable college coursework from an accredited community or four-year college or university with at least a 2.0 cumulative grade point average. SAT/ACT scores are not necessary.

Students enrolled in EDP have two academic program options from which to choose when planning their program of study for the bachelor's degree. Under option A, students choose a major and minor area of concentration for a total of at least 39 semester hours of credit. Option B allows a student to choose three different areas of concentration from among various academic departments. Assignments and take-home exams can be submitted to EDP by mail, electronic mail, or facsimile. Exams may also be taken with an acceptable proctor who mails the completed exams back to EDP.

By 1993-94, 17 courses had been developed, combining traditional textbook reading with videotaped lessons, a detailed course guide, and interactive opportunities through such distance education technologies as e-mail, voice mail, and telephone conferencing. EDP students may select from a variety of distance education instructional formats:

- WSU video courses,
- WSU correspondence course,
- College-level credit, videotaped courses offered by the National Universities Degree Consortium (NUDC),
- WSU on-campus courses, and
- Transferable courses from other institutions.

Washington State University's video courses are based on videotaped instruction in addition to print-based textbooks, course guides, and supplemental materials. Video courses follow a semester schedule; students start each course at the beginning of a semester and are expected to complete the course within that 15-week semester. Students can access videotapes at various community sites, local cable television station, through Mind Extension University (ME/U), or rental directly through EDP or ME/U. Enrollment fees for video courses are the same as the standard WSU undergraduate tuition of $151 per credit of for 1995-96. Tuition is $245 per credit for non-resident students.

Correspondence courses are primarily print-based and are conducted almost exclusively by mail through written correspondence. Correspondence courses may begin at any time, and students have one calendar year to complete them. Correspondence courses may account for up to, but not more than, 25 percent of the total number of hours required for a WSU baccalaureate degree. Enrollment fees are $90 per credit hour for all correspondence courses, for both resident and non-resident students.

Early assessment of outcomes for students enrolled in EDP as compared to students enrolled at a WSU campus (using various tests of significance) found that Extended Degree students outperformed students at WSU campuses. Assessment of the overall program by students suggests a general level of satisfaction with the program. In particular, students were satisfied with exam turnaround time, instructor feedback, and advisor site visits. Faculty evaluating the program found EDP students to be thoughtful, mature adults committed to learning and completing their degree. Faculty frustration was encountered in instances of incomplete grades and the time commitment required for interacting with students.

Contact: Dr. Muriel K. Oaks, Director, Extended University Services, 106 Van Doren Hall, Pullman, WA 99164-5220; 509-335-7878.

6. Virginia Community College System

In 1995, the Virginia Community College System adopted the American Association of Higher Education's Teaching, Learning, and Technology (TLT) Roundtable model. This was the first statewide higher education system to endorse this model for accommodating technological changes and integrating new technologies into the teaching and learning process. The roundtable model seeks to improve the quality and accessibility of higher education through the selective use of information technology and information resources in teaching and learning—while controlling costs. The organizational structure of the roundtables provides workshops, guidelines, vision(s), conceptual frameworks, background information, and white papers. Roundtables are comprised of campus groups, faculty who have and who have not extensively used technology, campus service organizations, and representatives from the chief academic officer at each campus or college.

The Chancellor of the Virginia Community College System, Arnold R. Oliver, intends for the model to also broadly coordinate the professional development and information infrastructure activities of the system's 23 colleges. Within the system, few campus structures existed that broadly engaged faculty, administration, and academic support staff across functional boundaries. The roundtable model addresses this weakness and sets the following systemic objectives:

- to address teaching and learning issues related to the use of information technology,
- to develop effective and efficient methods for using information technology in the teaching and learning process,
- to guide campus professional development activities relating to the educational uses of information technology,
- to enhance information technology infrastructures,
- to share successful teaching and learning strategies using information technology, and
- to evaluate teaching and learning activities that use information technology.

Toward the realization of these objectives, the system office will support TLT roundtable planning and organizational activities in the first year, 1996. These activities include an initiation conference. The colleges will be responsible for providing ongoing support form campus TLT roundtable operations thereafter.

Contact: Scott A. Langhorst, Instructional Technology Systems Planner, Virginia Community College System, James Monroe Building, 15th Floor, 101 North 14th Street, Richmond, VA 23219; 804-692-0299.

7. "Gaining State Commitment to a Redesigned Delivery System" (SHEEO/FIPSE)

The State Higher Education Executive Officers (SHEEO), with a grant of approximately $250,000 from the U.S. Department of Education's Fund for the Improvement of Postsecondary Education (FIPSE), launched a three-year-long project in 1993 in response to the growing state interest in meeting increased public expectations for access to quality higher education in a near universal climate of shrinking resources. SHEEO uses its FIPSE funding to help state higher education boards address changes in the system-level policies necessary for integrating technology with the traditional higher education system. Policies for governance, finance and articulation will likely command the most attention of state higher education leaders. For instance, state funding strategies may have to be adjusted to accommodate statewide technology councils that direct funds for cross-cutting activities, incentive funding for expanded use of technology, and administrative and purchasing consortia.

Three pilot states were identified to receive a year and a half of funding from the SHEEO/FIPSE project in 1993: Virginia, Minnesota, and Tennessee. The first round of states in the SHEEO/FIPSE project were selected on an ad-hoc basis, with those states selected who demonstrated an existing restructuring process and an interest in engaging a deeper conversation about learner productivity. In Virginia, the State Council of Higher Education has used its SHEEO/FIPSE resources to engage the faculty of eight public campuses in a restructuring dialogue. Minnesota's Higher Education Coordinating Board developed a survey instrument to measure different constituents' attitudes towards future delivery systems and held a forum for policy makers to present these findings and receive legislative feedback. In Tennessee, the Higher Education Commission also used its SHEEO/FIPSE funding to study ways to collect information and build consensus around incentives and ideas for greater efficiency and effectiveness in its higher education institutions.

Oregon, Florida, and Georgia were named Phase II Pilot States to receive a year and a half of funding from SHEEO/FIPSE. Each of these states were also focusing on "student learning productivity." Other selection criteria included the existence of multiple partnerships, improving cost-effectiveness, including technology, and securing the commitment of the state's Coordinating Board. Oregon funded institutional demonstration projects in three areas: master learning, technology, and time-shortened degrees. A goal of all of the projects is to build faculty capacity through the use of technology to enhance instruction and meet access needs. Florida's SHEEO/FIPSE project will identify ways to improve the delivery of impacted undergraduate courses and develop statewide policies for the redesigned delivery system. Georgia, looking to expand access and target key resources from the Georgia Lottery Program, the Distance Learning and Telemedicine Fund, and a $50 million refund from the telephone companies, created a new committee to systematically treat technology as "infrastructure." Specifically, the reorganization of educational structures, resources and services will be examined to identify how policies can affect the productive deployment of distance learning and instructional technology.

Rhonda Epper, a Research Associate with the SHEEO/FIPSE project has identified that cost-savings are both clear and ambiguous. While delivering higher education to areas with demand via technology is clearly less expensive than building new institutions, cost-savings resulting from the integration of technology in the traditional classroom are less obvious. She explains, "Asynchronous delivery modes, where students interact directly with instructional content through computer networks, CD-ROM, or other multimedia technologies, hold greater cost saving potential" than video networks, which require the live presence of a faculty member. Broadband digital networks in Georgia, North Carolina, Utah, and the California State University are state-level examples of this emerging technology with greater cost saving potential.

Contact: Rhonda Martin Epper, Research Associate, State Higher Education Executive Officers, 707 17th Street, Suite 2700, Denver, CO 80202-3427; 303-299-3627.

8. Alternative Means for Delivering Instruction in Oregon

Peter T. Ewell. "External Evaluation of the Oregon State System of Higher Education Projects Funded in 1993-95," NCHEMS, February 8, 1996.

The Oregon State System of Higher Education (OSSHE) funded a series of pilot demonstration projects between 1993 and 1995 that sought to explore alternative means of delivering instruction more efficiently and effectively. Projects that used technology, mastery learning techniques, or sought to reduce time to degree were given priority. Twenty-four projects were funded in total, representing an investment by the state of approximately $500,000. Four types of projects were funded:

1. Projects that attempted to re-engineer the delivery of a single course;
2. Projects that attempted to redesign entire programs or course sequences;
3. Projects that sought to broaden access and to ease transitions among institutions; and
4. Large scale faculty development efforts.

The National Center for Higher Education Management Systems (NCHEMS), conducted an evaluation of the OSSHE program in fall 1995. NCHEMS findings are centered around four primary areas: efficiency, learning effectiveness, effects on pedagogy, and investment costs and implementation challenges. A summary of the findings in each of these areas follows.

Instructional Efficiency

The evaluators found that for the most part, the proposition that significant increases in productivity can eventually be realized through combinations of new technologies and self-paced mastery learning designs was sustained. Instructional efficiencies were demonstrated in at least three ways: by extending participation to a larger number of students; by cutting the amount of instructional activity required to earn a credential or complete a sequence of courses, and by reducing unit costs. The evaluators suggest that overall productivity gains are possible through these alternative delivery mechanisms provided that the quality of learning outcomes remains constant and the initial investment and implementation obstacles can be overcome.

Instructional Effectiveness

While only a few of the projects examined student learning outcomes, those that did found that the projects were at least as effective as more traditional forms of delivery. Strong student satisfaction and higher levels of student retention were also found.

Impacts of Technology on Instructional Roles

Evaluators found that technological and pedagogical issues were inseparable, and that it was important to begin with the pedagogical rather than the technological issues; that is, participants argued that a "pedagogy up" approach, based on setting clear instructional objectives and then designing the learning experiences to achieve those objectives was superior to deciding on the technology and then developing the instructional objectives.

Cost and Implementation Problems

Although most of the OSSHE projects concluded that there were potential productivity gains from these alternative approaches, evaluators found that the initial investments were very high and there were organizational obstacles (both structural and cultural) to implementation. In fact, initial implementation costs were higher than anticipated in almost all cases.

The evaluators conclude that the range of alternative approaches were found to be feasible and potentially cost-effective. A number of lessons, however, can be learned from these experiences. For alternative delivery mechanisms to be effective, they must be embedded in a wider vision of institutional change that includes investments in infrastructure and changes in faculty reward systems. In addition, alternative instructional approaches, particularly those that utilize technology, should be programmatic in nature, addressing programs and instructional sequences rather than just individual courses. Productivity gains should not be planned for the short run, although they may well be realized over the long run. Finally, the effectiveness of the programs should be monitored regularly to ensure that productivity gains do not come at the expense of high-quality learning outcomes.

C. An Example of Using Technology to Restructure Academic Work

Rensselaer Polytechnic Institute Studio Classrooms

By using the latest computing tools and incorporating the uses of cooperative learning Rensselaer Polytechnic Institute (RPI) has been able to offer an alternative to introductory courses with its "studio" model classrooms. RPI has been providing "studio" classrooms since 1993, at which time they renovated two classrooms for the first offerings of the "studio" classrooms in calculus, chemistry and physics. By spring 1995, the physics department expanded this classroom model and enrolled 300 students in the "studio" classrooms and 400 students in the traditional lecture. (RPI presently is not fully equipped to accommodate all students through the "studio" classroom method.)

In these model "studio" classrooms, which typically enroll about 60 students compared to 200 students for traditional courses, students are paired off at a computer. At the start of a class, students turn their back to their workstation to face a professor, who briefly introduces key concepts and assigns in-class exercises and labs. The students then turn toward their computers and conduct their experiments, using the computer to compile and plot data instead of a traditional lab notebook and graph paper.

Jack Wilson, dean of undergraduate and continuing education at RPI, says that although students' grades and test scores have not risen since the first studio classroom was piloted in 1991, student satisfaction with the class is higher than with traditional survey courses. In the studio format for introductory physics, students need only four hours a week, 33 percent less time, versus the five-and-a-half hours that traditional lecture, discussion groups, and laboratories require.

RPI is following the performance of these "studio" students as they enter upper-division courses in physics and engineering to determine how successful they are compared to students who take traditional lecture courses.

The reduction in class time produces a savings that RPI officials estimate to be $50,000 or more for the large introductory courses. Most of this cost comes from the demand for teaching assistants, who have been primarily responsible for discussion groups and laboratory courses. This savings on personnel expenses more that offsets the $100,000 cost of creating a studio classroom, if the costs are spread over five years. RPI currently spends about $5 million a year on computing, and will complete a $15 million renovation of its chemistry building to include new studios by January 1996.

Contact: Dr. Jack M. Wilson, Dean of Undergraduate and Continuing Education and Professor of Physics, Rensselaer Polytechnic Institute, Troy, New York 12180-3590.

Sources: (1) Thomas J. DeLoughry, "Information Technology," *Chronicle of Higher Education*, March 31, 1995; (2) Melissa Lee, "Leading the Way," *Wall Street Journal*, November 1995; and (3) Rosalie Stemer, "The Virtual Classroom" *New York Times*, January 8, 1995.

D. Other Data on the Use of Technology

1. Estimates from the Commission on Innovation Concerning Distance Learning

Choosing the Future. Report of the Commission on Innovation to the Board of Governors of the California Community Colleges. October 1993.

In this report, the Commission on Innovation examined setting up a systemwide goal for the California Community Colleges to expand the use of distance education. The goal would be to serve 20 percent of all enrollment demand through distance education by the year 2005.

The commission estimated potential cost savings from new technologies based on research data concerning available systems and on the experience of community college technology users in California and other states. The commission assumed that by the year 2000, 30 percent of the FTES in basic skills, ESL, and vocation courses could be served by multi-media, interactive knowledge and integrated learning systems. The commission also assumed that computer-related hardware and software would be replaced every five years.

The commission assumed that high tech centers with at least 100 workstations each could be phased in at most campuses by the year 2005. With these assumption, the commission estimates that systemwide savings of approximately $335 million per year could be realized by the year 2000, and that by 2005 savings of approximately $594 million could be realized. Taking investment costs into consideration, yearly savings by 2005 could be used to serve an additional 117,000 FTES per year.

2. Data Concerning the Increased Use of Technology in the Classroom

Kenneth C. Green. "The Coming Ubiquity of Information Technology." *Change Magazine* (March/April 1996).

In this article, Green discusses the results of the 1995 *Campus Computing* survey, an annual survey that examines the extent to which colleges and universities are using various forms of technology. Green notes that the survey reveals "dramatic recent changes in the use of information technology in instruction." The proportion of college courses using some form of information technology has increased significantly just between 1994 and 1995. The survey looked at the use of various kinds of information technology (e-mail, computer classrooms, commercial courseware, multimedia, etc.) and found that *the use of these technologies increased by at least 50 percent, and in some cases doubled.* For example, nearly 24 percent of classes were being conducted in computer-equipped classrooms, as compared with 15.8 percent in 1994; 20 percent of courses were using electronic mail in 1995 as opposed to 8 percent the previous year.[98] Green concludes that "the events of the past 15 years suggest a steady migration of information technology into instruction and other aspects of the learning experience." Observers suggest that this data shows that instructional technology has reached the "critical mass" that it needs in order to spread throughout higher education.[99]

Endnotes for Strategy Seven

[98] Thomas J. DeLoughry, "Reaching a 'Critical Mass,'" *The Chronicle of Higher Education* (January 26, 1996), p. A17, A20.

[99] Everett M. Rogers, "Response to Kenneth Green," *Change* (March/April 1996), p. 29.

STRATEGY EIGHT

BASE COLLEGE ADMISSIONS ON ASSESSMENT OF ACHIEVEMENT.

Overview for Strategy Eight

The concept of shared responsibility includes enhancing communication and collaboration between higher education institutions and K–12 schools. Strategy Eight emphasizes the need to base college admissions on tested achievement and competency—so that high schools have a clear signal as to how to shape their curricula. Explicit standards and assessments will send a much clearer signal to the high schools than do the current criteria that rely primarily on course-taking patterns, grade, and general tests of academic preparedness, such as the Scholastic Assessment Test I (SAT). This section of the Resource Guide provides examples of several competency-based assessment efforts, many of which are already in place as admissions tools. This section also provides a summary of California State University's academic performance reports.

A. Examples of Competency-Based Admissions Efforts

1. California's Golden State Exam

California's Golden State Exam (GSE), initiated in 1983, offers end-of-course assessment in key academic areas for high school seniors. The GSE assesses students' knowledge and ability to apply that knowledge in the following subject areas: first-year algebra, geometry, U.S. history, biology, chemistry, coordinated science, and written composition.[100] The exams consist of both multiple-choice questions and problems or questions that require written responses. In addition, science exams include a laboratory component. Students must be currently enrolled in courses covered by the GSE to qualify for assessment.

Participation in the Golden State Exams is voluntary for high school districts. While an annual budget technically limits the number or high school districts who may participate, less than one percent of all interested high school districts have not been accommodated to date. To participate, schools register with their district testing office, where testing materials are ordered from the State Department of Education. With participation voluntary, comparisons cannot be made between schools or districts.

Scores on the GSE are reported in terms of a six-level set of performance standards, ranging from minimal achievement to high honors. Students whose proficiencies meet or surpass the three highest performance standards (high honors, honors, and school recognition) are recognized as Golden State Scholars. Students who achieve High Honors or Honors on a GSE subject test receive an insignia of their high school diplomas and scores are recorded on transcripts. These students earn certificates of achievement from the state. Students achieving School Recognition are honored locally, a response that varies from district to district.[101] In spring 1995, over 129,500 students achieved High Honors, Honors, or School Recognition, representing approximately 1/3 of all test-takers that year. To draw public attention to students' academic performance, lists of Golden State Scholars are sent annually to students' schools, school districts, and counties. A student's performance on a GSE subject test is weighted by admissions officers of the campuses of the California State University and University of California comparably to extracurricular activities.

Since 1987, the number of students taking a Golden State Exam has increased from 96,657 to 402,840 in 1995. Since no socioeconomic information is available about the GSE test-takers, no analysis has been conducted to determine how representative participation is nor how different socioeconomic and ethnic groups perform on the examinations. Dr. Jerry Hipps, who administers the Golden State Exam for the San Francisco Unified School District, suggests that schools with a higher-level student are more likely to volunteer to take the GSE, realizing that these students have the ability to do well on the exam. Hipps maintains that schools with smaller proportions of students pursuing four-year colleges and universities are less likely to participate, recognizing that the assessment experience may be too frustrating. Linda Lownes, a coordinator of the GSE in the Los Angeles Unified School District, asserts that the Los Angeles Board of Education encourages schools to participate to assess the level of course consistency across the district.[102]

State Superintendent Delaine Eastin has introduced legislation to modify and expand the GSE as a cornerstone of her Challenge School District Reform initiative. Specifically, she has asked that an assessment system be designed and implemented based on the GSE, the Career-Technical Assessment Program (C-TAP), and other department assessments. The new system would provide the individual student information necessary for awarding the Golden State Achievement Certificate (GSAC). The Superintendent has commented, "Graduation from high school should not be a cheap reward for just showing up. Potential employers, parents, and the students themselves deserve to know that certain levels of achievement have been mastered in every subject area."[103] As envisioned, the Golden State Achievement Certificate would replace the traditional high school diploma by 2004. With the number of GSE subject areas expanded, Eastin intends for the GSE subject tests to be used as qualifying examinations for the GSAC. While the basic structure of the GSE has been established and garnered the support of state educators, and the process for scoring the GSE has been designed and proven, California's State Department of Education acknowledges that there are several unresolved policy issues for the GSE. For instance, the department needs to resolve whether the state will provide funding for administering an expanded version of the GSE program or if the districts will be required to pay for the exams. Logistically, decisions need to be made as to how the GSE will be used by classroom teachers to assign grades. Technically, it also remains to be determined whether the GSE will contain a portfolio component and if cross-district/longitudinal comparability can be ensured. With no statewide proficiency standards in place currently, it will also need to be determined how the GSE will need to change to reflect content and performance standards if they are ever developed.

Representatives from both the Los Angeles and San Francisco Unified School Districts indicate that the GSE has the potential to be a potent tool for measuring competencies but that the absence of state-wide standards prevents the GSE from playing a major role in the curriculum and teaching processes.

Contacts: (1) Lynn Kinghorn, Senior Analyst, Sacramento County Office of Education, 9738 Lincoln Village Drive, Sacramento, CA 95827; 916-228-2662; (2) Linda Lownes, Coordinator, Information Technology Division, Los Angeles Unified School District, 450 N. Grand, Room G300, Los Angeles, CA 90012; 213-625-4121; and (3) Dr. Jerry Hipps, Evaluator, San Francisco Unified School District, 135 Van Ness Avenue, San Francisco, CA; 415-241-6400.

2. The Scholastic Assessment Test II

The Scholastic Assessment Program, managed by The College Board, offers two assessments of high school students that are commonly used in the college admissions and placement process: the SAT I and the SAT II. The SAT I is a three-hour, primarily multiple-choice test that measures developed verbal and mathematical reasoning abilities related to successful performance in college. The SAT II are subject tests designed to measure knowledge, and the application of that knowledge, in specific subject areas. In 1995, 56,141 California students took the SAT II test(s).

Because the test has been extensively tested for its predictive power of college performance, the SAT II is a potentially powerful tool to be used by high schools and colleges moving toward standards-based learning and college admission. In fact, correlations between the SAT II writing test and grades in regular English courses indicate that the SAT II writing test more accurately predicts grades than either the SAT I verbal test or the Test of Standard Written English (TSWE). In eight of nine regional and two- and four-year institutional comparisons, the correlation for the SAT II was higher than the correlation between the SAT I Verbal Test and the TSWE.[104]

The material incorporated in SAT II tests are independent of particular textbooks or methods of instruction. The content of each subject test evolves annually to reflect national changes in high school curriculum, while the types of questions remain relatively unchanged. Tests are one-hour multiple-choice assessments of competency in the following subject areas: writing, literature, American history and social studies, world history, three levels of mathematics, biology, chemistry, physics, French, German, modern Hebrew, Italian, Latin, and Spanish.[105] Scoring ranges from 200 (lowest) to 800 (highest). Separate subscores ranging from 20 to 80 are calculated for the listening component of foreign language examinations and for the writing sample. Unlike the SAT I tests, students have the option to review their performance(s) on the subject tests before forwarding any or all of them to particular higher education institutions. Once tests are forwarded, however, those particular scores may not be withheld again.

Currently in California, the University of California requires its applicants to take three SAT II subject tests: writing, math, and a subject test in an area appropriate to the chosen discipline of college study. Campuses of the University of California use scores on the SAT II differently. At campuses in Berkeley, Davis, Irvine, Los Angeles, Riverside, and Santa Cruz, scores of all three subject tests are a component of the index used to select the portion of freshmen students accommodated by academic criteria. At UC San Diego, the SAT writing and math scores are used in the academic index. The California State University system does not require its applicants to take subject-based competency tests.

Contact: Kris Zavoli, Director of Admission and Guidance Services, Western Regional Office, The College Board, 2099 Gateway Place, Suite 480, San Jose, CA 95110-1017.

3. The Proficiency-Based Admission Policy (PASS) in Oregon

With the 1991 passage of the Oregon Education Act for the 21st Century (H.B. 3565), the Oregon State System of Higher Education (OSSHE) began developing a new approach to college admission. The new approach entails replacing traditional time-based proxies for learning (such as the Carnegie unit) with clearly specified statements of the knowledge and skills which students must master to be accepted into any of Oregon's seven institutions of higher education. In a proficiency-based system, clear performance standards are established and students are assessed in relation to those standards. In this system, high schools design an instructional program that prepares students for required assessments. This new system of admission is known as the Proficiency-Based Admission Standards System (PASS).

OSSHE made its decision to change its admissions procedures for two reasons: (1) School reform legislation requires all students to earn Certificates of Initial Mastery (CIM) and Certificates of Advanced Mastery (CAM), which are performance-based assessments. Because students' academic records will soon record performances on the CIM and CAM, colleges and universities will need to adapt their admissions criteria to insure compatibility with the new performance measures. (2) The current admission system does not establish a floor of knowledge and skills that students must possess to learn at the college-level. Variation in course content and the meaning of grades instead has resulted in tremendous variation in what students who meet admission standards actually have learned. Testament to this variation are high remediation rates and low completion rates in Oregon's public institutions of higher education. For instance, college remediation rates approach 40 percent in mathematics and 33 percent in writing among students deemed fully qualified by traditional admissions standards. OSSHE maintains, "An accelerated baccalaureate is more feasible in a system where students can demonstrate proficiency in some aspects of the general education curriculum and move into their major sooner."[106]

Academic proficiencies were developed as a result of OSSHE's analysis of state and national curriculum reports and the comments and recommendations of a task force of high school and college educators. In early 1994, the Oregon State Board of Higher Education approved proficiencies in six content areas: math, science, social sciences, foreign languages, humanities, and fine arts. The Board also required that students show mastery of skills in the context of six content areas: reading, writing, communication competence, critical/analytic thinking, problem solving, technology, systems/integrative thinking, teamwork, and quality work. Each content area contains from 5 to 11 proficiencies students must master at specified levels. To provide parents and teachers with a measure to gauge student progress toward college readiness, samples of student work are made available as "anchor" or "benchmark" examples.

Assessment of student proficiencies are conducted using three strategies: criterion-referenced tests, common assessment tasks, and teacher verifications. Criterion-referenced tests provide information on content knowledge. Common assessment tests assess cognitively complex proficiencies. Teacher verifications certify student performance on proficiencies which are best judged in the classroom. Teachers are provided with scoring standards (on a scale of 1 to 5) and examples of acceptable student work for each proficiency they score. Numeric scores are given for each proficiency, and then scores are tabulated to produce an overall score, much like a grade point average. Partnerships between high schools and colleges implemented during 1995 and 1996 enable experimentation on assessment to help identify those most accurate and predictive of student knowledge. New computerized transcripts provide raw scores for each standard. Student portfolios, available by admission officer request, provide examples of student work.

Once fully implemented, current measures of academic performance may still be used but in modified ways. For instance, Advanced Placement Test Scores will be used to satisfy some PASS proficiency requirements. SAT and ACT scores will continue to be used, but as a third or fourth piece of data considered when making an admission decision. Grades will still be used, but as an indicator of intangible student qualities such as attitudes, behavior, attendance, study skills, work habits, improvement, and motivation.

The transition schedule for fully implementing PASS is rigorous. By 2001, all freshman students will be admitted to OSSHE institutions based on their demonstrated proficiency in six content areas and nine process areas. When fully implemented, the PASS admission policy will be required for resident new freshmen from standard and/or accredited Oregon public schools, and optional for new nonresident freshmen from accredited public and private high schools, nongraduates, and international students. David T. Conley, director of PASS, estimates the cost of devising new standards to be less than $1 million.

Contact: Dr. Christine A. Tell, Assistant Director, Oregon State System of Higher Education, PASS Project Coordinator, Oregon State System of Higher Education, Office of Academic Affairs, PO Box 3175, Eugene, OR 97403-0175; 541-346-5799.

4. Competency-Based Admissions at the University of Wisconsin

In June 1993, the University of Wisconsin (UW) Board of Regents endorsed a Competency-Based Admission (CBA) policy to supplement current admission policy based on the traditional time-based proxies for learning (such as the Carnegie unit). The movement away from the traditional Carnegie Unit system was stimulated by the K–12 system's broad efforts to integrate curriculum as well as make it more performance-based. With the primary intent to support K–12 educational reform, competency-based admissions began its pilot implementation in the 1995-96 school year in eight high schools. Additional goals for the program included the potential for reducing the need for remedial courses in English and mathematics, as well as improved articulation among K–12 schools; vocational, technical, and adult education; and University of Wisconsin system institutions.

University of Wisconsin faculty as well as representatives from the Department of Public Instruction, the Wisconsin Technical College System, and K–12 schools served on five subcommittees to develop competencies in English, mathematics, science, social studies and foreign language. Competencies were derived on the premise that if students attain and demonstrate a certain level of knowledge and skill in the major disciplinary areas, they will be adequately prepared for college coursework. Competencies for each subject are outlined in a "Competency-Based Admission Training Manual" provided to each of the eight pilot high schools.

A sixth subcommittee designed a Standardized Reporting Profile (SRP) to be used by pilot schools reporting student competency attainment to UW admission officers. The SRP contains a scale that high schools may use to rate student competency in each such area, where:

1 = Poor Performance,
2 = Limited Performance,
3 = Satisfactory Performance,
4 = Very Good Performance,
5 = Excellent Performance, and
NBE = No Basis for Evaluation.

Competency levels reported on the SRP would be based on the results of the assessment process used by the high school. The SRP would also contain supplemental information about a student such as attendance, effort, extracurricular activities, honors, etc. Teachers would complete the report at the end of the junior year and again after graduation. Each UW institution would determine the competency level required for admission and how the supplemental factors will be valued. Because competency-based admissions were intended to supplement the current admissions policies, high schools and UW institutions have the discretion to use the SRP in lieu of or in addition to the traditional transcript that reports Carnegie Units. Students not deemed "admissible" based on the Standardized Reporting Profile during the pilot period will be reevaluated based on the traditional transcript.

The process of developing competency-based admissions helped establish clear roles and responsibilities for the secondary schools and UW institutions. Wisconsin's high schools will maintain responsibility for determining what competencies the student attained and reporting that information to admissions officers. School personnel will determine competencies through the use of traditional standardized assessment, performance-based measures, and portfolio review. The committee who developed the SRP argued that placing this responsibility with the high schools provided a greater likelihood that students would be subjected to a comprehensive and multidimensional assessment strategy. Institutions of the University of Wisconsin will in the meantime be responsible for setting admission standards and determining the general requirements for admissions.

The task force that developed CBA noted that the efficiency of the university admissions process may be undermined by widely implementing CBA. Addressing this concern, it asserted that if secondary schools both evaluate student competencies and provide a summary of aggregate data based on competencies to the UW institutions, the complexity and costs incurred by these institutions would not be significantly increased. In addition to an evaluation of the resources needed to make admissions decisions with CBA, the task force urged an evaluation be designed to address the following questions:

- Does the competency-based admission profile include the kind of information needed to make competitive admission decisions?
- Is the competency-based admission policy objective, fair, and unbiased?
- Is there a difference in academic success rates between freshmen admitted under the competency-based admission policy and freshmen admitted under the Carnegie Unit policy?
- Does competency-based admission predict the success of students?
- Will the competency-based admission policy allow students who take Tech Prep classes to be admitted to UW systems?

Approximately 200 students have applied with the SRP to be admitted for fall 1996, according to Nancy Kaufman, who is responsible for the systemwide implementation of CBA. Kaufman predicts that preliminary answers to the amount of time it took admissions officers to evaluate each candidate will be available later. In the meantime, four additional high schools have volunteered to participate in the CBA process, with training to occur in summer 1996.

Contact: Dr. Nancy J. Kaufman, Interim Dean of Professional Studies and Outreach, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001; 414-465-2000.

5. The Next Step Project in Colorado

In 1994, the Colorado Commission on Higher Education (CCHE) began working with the Colorado Department of Education, representatives from two state universities (the University of North Colorado and the University of Colorado at Denver) and two Denver-area public school systems (Aurora and Mapleton) to develop new higher education admission polices. The collaboration, know as "The Next Step Project: K–12 and Higher Education Working Differently and Together," was born after K–12 standards-based education reforms were implemented in Colorado in 1993 (HB 93-1313).

Prior to adoption of HB 93-1313, school districts in Colorado such as Aurora, Mapleton, and Weld County #6 voluntarily implemented standards-based education. For students graduating from these districts, Colorado's colleges and universities lacked the usual "index" credentials (e.g. GPA, class standing, and SAT/ACT scores). Without index credentials, colleges and universities could not calculate a score for these students, and thus admitted these graduates to state colleges and universities through an admission "window." Admissions officers at four-year institutions had developed individual contracts with these innovative school districts to admit their graduates through the admission window. The cost ineffectiveness of these contracts and the potential for equity concerns were a catalyst for The Next Step Project and its charge to craft alternative college admission policies.

In its first year, 1994-95, The Next Step Project worked collaboratively with the CCHE to develop a new admission policy which will allow any Colorado high school student to be admitted to cooperating universities solely on the basis of demonstrated competencies in key academic subject areas. Eleven of the fourteen four-year institutions in Colorado have agreed to admit students on standards-based data.

Competencies are divided into two content areas: the first-tier comprised of reading, writing, math, science, history, and geography; and the second-tier comprised of foreign languages, art, physical education, music, economics and civics. Over the last two years, content-area committees have suggested high school exit standards for each of the subject areas and entrance standards for entry into higher education, as well as defined the evidence high schools would need to develop and provide on transcripts. Each content-area committee has decided that only one group of standards is needed per content area, assuring clear articulation between high school exit and college entrance standards.

The Next Step's recommendations are advisory only—individual high school districts are ultimately responsible for developing their own standards by which student learning is judged. However, Dr. Jerry Griffith, Director of The Next Step maintains that anecdotal evidence from participating high schools supports the contention that The Next Step's committee recommendations have influenced the thinking of school districts who had not done any work on standards in the content areas previously.

Content-area committees also designed a four-point rubric for tasks in each content area, to be applied by high school faculty members evaluating student performances. The rubric was defined where:

1 = In Progress;
2 = Proficient (meets or exceeds performance levels established for district/state standards);
3 = Advanced; and
4 = Exemplary.

This rubric score would then be reported on a high-school transcript along with other information. Utilizing the rubric scores for each content area, Colorado's four-year institutions would define the pattern of scores necessary for admission. This pattern would reflect the relative competitiveness of the institution's admissions process as well as its mission.

Starting in fall 1996, students currently enrolled in Aurora and Mapleton high schools will be admitted strictly on the basis of their rubric scores. Matching these students with peers who graduated from traditional high schools, Colorado will be able to study the differences in academic performance and satisfaction. The state hopes this study and the subsequent discussion of curriculum and assessment with high schools will result in articulations so fine-tuned that the students' proficiency in a subject, as measured by the rubric score, will be an excellent predictor of success in similar college courses.

Currently, the second-tier recommendations have just been completed. Expanded committees with broader representation from Colorado's high schools and universities during the second year, 1995-96, has resulted in a more interdisciplinary approach to developing standards. For instance, a set of standards will be recommended around the cluster of social science disciplines taught in high school: geography, history, economics, and civics. Griffith expects that with some editorial changes recommended by The Next Step's Steering Committee, a mechanism will be developed to disseminate the standards to all school superintendents in the state.

While the second year of The Next Step was being implemented, the Colorado State Department of Education initiated a three-year pilot study of competency-based college admissions. During this time, students from participating high schools will be admitted into any of the 11 institutions participating in The Next Step solely on the basis of a portfolio from any one subject in the first-tier area. With 17 high schools confirming participation to date, the department expects approximately 70 more schools to participate in the pilot study for 1996-97. Griffith notes that The Next Step Project had a significant role in bringing this issue to the forefront of the state's attention, and anticipates that the two studies are likely to complement one another more than overlap.

Contact: Dr. Jerry Griffith, Project Director, The Next Step Project, University of North Colorado, Office of the Provost, Greeley, CO 80639; 970-351-2823.

B. Improved Feedback to Schools: California State University's Academic Performance Reports

Annually, the California State University (CSU) produces individualized Academic Performance Reports on its first-time freshmen. The report is intended to help evaluate the academic preparation of the school's college-bound students. Consequently, copies of the report are mailed to the district superintendent, chair of the district's board of trustees, the district's director of research, the high school principal, and math and English teachers for their review. In addition, the state university uses the data as a tool to focus its recruitment efforts. Each report provides a general picture of how high school students matriculating through the CSU system performed during their first academic year. These data, however, do not support conclusions about the quality or ranking of high schools or their faculty members.[107]

An academic performance report is sent to high schools if five or more of their spring graduates enrolled as first-time freshmen at a California State University campus during the following academic year and completed the spring term at the same CSU campus. In 1995, reports were mailed to over 850 California high schools. Separate reports are prepared for students who meet regular admission requirements (regular admits) and for those not meeting regular requirements who are admitted by special action (special admits).

Each report contains tables with data on the following measures of student academic progress and achievement:

- Systemwide five-year summary of the key academic indicators for all California State University first-time freshmen,
- Enrollment distribution and persistence,
- Pre-admission examination results (SAT/ACT),
- English Placement Test (EPT) results and sample questions,
- English Placement Test (EPT) subset means,
- Entry Level Mathematics (ELM) exam results and sample questions,
- Entry Level Mathematics (ELM) exam subset and total score means, and
- Grade point average (GPA) comparisons for all California State University first-time freshmen.

Tables concerning the SAT, EPT and ELM provide summary data on the readiness of each school's spring graduates for college level English and mathematics coursework. With the rising direct expense of providing remedial education to college students and the indirect expense associated with longer time-to-degree for students enrolled in noncredit remedial courses, CSU Chancellor Barry Munitz discussed in a letter to leaders of the state's high schools that the Academic Performance Report should assist schools in reducing the high percentage of new students unable to demonstrate proficiency on the EPT and ELM examinations.

The University of California provided a similar academic reporting mechanism to high schools and community colleges regarding the progress and placement of its first-time freshmen and transfer students, but the program was terminated in the early 1990s due to budget cuts.

Contact: Barbara Young, Associate Director, Access and Retention Programs, Academic Affairs, Office of the Chancellor, 400 Golden Shore Drive, Suite 307, Long Beach, CA 90802; 310-985-2951.

Endnotes for Strategy Eight

[100] Discussion is currently underway to develop GSE subject tests in government and civics, integrated math, foreign languages, health sciences, literature, and the visual and performing arts.

[101] In the Fresno Unified School District, Golden State Scholars are honored at receptions hosted by local businesses and attended by families, community organizations, and state legislators.

[102] Lownes noted that based on results of student GSE performance, the content and assessment of learning in courses are currently *not* consistent.

[103] Challenge School Districts Task Assignment for Committee #18, 1995.

[104] Examining the extent to which grades of various minority groups differ from the predictions of the total group regression, the College Board found weighted average of the actual versus predicted scores to be -0.04 for African Americans, -0.03 for Asian Americans, and -0.14 for Latinos. Negative values indicate that the course grades for the group are lower than predicted by the SAT II writing test.

[105] In November 1995, a new SAT II test, the English Language Proficiency Test (ELPT), was introduced. The ELPT is intended for students for whom English is a second language or who are limited-English-proficient. Measuring both listening and reading skills, the test indicates how well such students will function in a college course taught in English.

[106] David T. Conley and Christine A. Tell, "Proficiency-Based Admissions Standards System," Oregon State System of Higher Education, 1995.

[107] A similar annual report, with comparable data and dissemination, is provided regarding the academic placement and progress of CSU students who have transferred from California's Community Colleges.

STRATEGY NINE

ASSESS STUDENT LEARNING.

Overview for Strategy Nine

Strategy Nine calls upon colleges and universities to begin a transition toward making student learning—not the time spent on courses taken—the principle basis on which degrees and certificates are awarded. The Center is not calling for standardized approaches, but rather measures developed by each campus and program based on it mission and curricula. The following examples of competency-based learning efforts provide a context for a discussion of assessing student knowledge in college.

Examples of Competency-Based Learning Efforts

1. King's College, Wilkes-Barre, Pennsylvania

King's College in Wilkes-Barre, Pennsylvania, has a nationally recognized assessment program, oriented around the tenet that good assessment strategies are good teaching strategies. Methods of assessment are embedded in the core curriculum of King's College, which contains three general areas: transferable skills such as critical thinking, and moral and quantitative reasoning; traditional and interdisciplinary perspectives taught in the subjects of historical civilization, global awareness, human behavior and social institutions, literature and the arts, and natural science; and informed believing and acting.

King's College philosophically maintains that assessment of student learning should focus on clearly defined faculty expectations, explicit criteria by which to evaluate performance, clear, honest and timely feedback to students, strategies to enable students to connect learning in the "core" with the learning in the major, close collaboration between the faculty and the students, and critical student awareness of how learning occurs.

The college applies these philosophies to its Comprehensive Assessment Program through six major components. Incoming students take placement tests to assign them to appropriate courses in critical thinking, effective writing, and quantitative reasoning. Learning is assessed in five innovative ways: course-specific assessment in the core curriculum, competency growth plans for the transferable skills of liberal learning, the sophomore-junior diagnostic project, the senior integrated assessment, and the assessment in the major.

Course-specific assessment entails exercises to understand how students think and communicate within a discipline. These assessments are administered at the beginning and at the end of core courses. Competency-based growth plans, another component of King's College's assessment program, entails the development of an individualized plan for attaining transferable skills within the context of the major. Each plan includes a definition of the competencies to be developed from freshman through senior year, an indication of courses and assignments designed to help students develop the competencies, and specific criteria faculty and students use to measure the quality of student performance.

The Sophomore-Junior Diagnostic Project is a discipline-specific project which allows students to practically apply the student's liberal arts skills. The project is intended to be a screening exercise, where the student's ability to transfer critical thinking and effective communication are judged to ascertain if the proper level of skill is apparent. Students who don't demonstrate the appropriate skill level are provided supplemental assistance. At the next level, the senior integrated assessment occurs in the context of a required senior course or a capstone seminar to assess the student's ability to integrate knowledge gained in the major with advanced levels of the core curriculum's transferable skills. In addition to the senior integrated assessment, students' command of the major's content base are evaluated through completion of a comprehensive examination, a portfolio, or other strategies developed by the major department.

According to King's College's coordinator of assessment, Edmund A. Napieralski, the college does not systematically quantify the validity of its competency-based learning system. Rather, individual departments qualitatively review student success within the sophomore-junior diagnostic project, the senior integrated assessment, and the major assessment.

Contact: Edmund A. Napieralski, Coordinator, Core Curriculum and Assessment, King's College, Wilkes-Barre, PA 18711; 717-826-5917.

2. Evergreen State College, Olympia, Washington

Evergreen State College in Olympia, Washington, assesses its students' learning with narrative evaluations. The college, committed to student-centered education, has introduced collaboration into its curriculum design and its assessment processes. Evergreen maintains that removing grades from the evaluation process enables collaborative learning in a way that competitive-based grading stifles. As a result, faculty of the college assign neither letter grades nor numerical symbols for student achievement.

Students at Evergreen State College may register for a maximum of 16 credit units during any given quarter. This quantity of academic work is recognized by an award of credit based on satisfactory complement of program, contract, or course requirements. The quality of student work is measured in a written evaluation conducted by both the faculty member and the student.

Each student's transcript includes a cover sheet of the programs and contracts taken at the college, a neutrally written program description, a faculty evaluation, and a student self-evaluation of work performed in the program. Both the faculty and student evaluations are entirely narrative. The faculty evaluation, written after the student and faculty member confer about academic progress, may contain an assessment of how well the student achieved the program's goals, a summary of the student's academic attributes, a discussion of the skills demonstrated or acquired during the program, and a clear description of any change in student performance over the period described. All comments are supported by clear examples of student performance. Students do have the opportunity to amend the faculty evaluation within 30 days of the date the final evaluation is received.

The student self-evaluation, the other half of the written evaluation, requires students to reflect on previous learning and challenges to identify key knowledge or skills gained. Students are encouraged to review the program covenant, syllabi, handouts, papers, and other written materials, and previous evaluations to site specific examples of significant learning. Because the other parts of the transcript are either descriptive or the opinion of faculty, the student self-evaluation provides the only "hard information" on student work in the transcript. Students are limited to one single-spaced typed page per quarter of study and are urged to pay close attention to content and style as the evaluation becomes part of the permanent transcript. Evergreen State College maintains that its narrative evaluation system is well regarded by students, "Many students find writing self-evaluations to be among the most significant of their learning experiences at Evergreen."[108]

Transcripts and exemplary pieces of academic work are incorporated into a developmental portfolio, which is maintained by each student. Evidence of personal progress gained from professional and extracurricular experiences is also documented in the portfolio.

Evergreen College has attempted to assess the efficacy of its teaching and assessment strategies by comparing a randomly sampled person with an Evergreen alumnus in the college's goal and skill areas.[109] Surveying these alumni's supervisors, the study found from 75 to 81 percent of respondents indicted that Evergreen alumni were performing as well as or better than the comparison groups. In specific skill areas such as critical thinking, speaking, listening and understanding, and integrating theory with practice, employers noted that the Evergreen graduates performed "somewhat better" or "much better" than the comparison person.[110]

Contact: Barbara Leigh Smith, Academic Vice President and Provost, Evergreen State College, Olympia, WA 98505; 206-866-6000, ext. 6400.

3. Alverno College, Wisconsin

Alverno College in Wisconsin has been developing and implementing ability-based undergraduate education for the last 23 years. At Alverno, grades are not assigned to students' work. Instead, faculty and other trained assessors observe and judge a student's performance based on explicit criteria. Alverno emphasizes the value of the diagnostic feedback provided through this assessment process, as it helps to create a reflective practice of self assessment and a continuous process of learning.

Alverno's faculty has identified specific abilities its students should demonstrate as a result of their liberal arts and professional education. These abilities include: analysis, communication, problem-solving, social interaction, valuing in decision-making, global perspectives, aesthetic responsiveness and effective citizenship. Assessment at Alverno is multidimensional: students have multiple opportunities to demonstrate proficiency, and multiple strategies are employed to assess student learning.

Within each learning outcome are six developmental levels that are progressively more integrative at each level. In beginning courses, students develop and demonstrate levels one and two of the abilities, progressing through a coherent arrangement of courses throughout their general education. At the highest levels, levels five and six, students apply all of their previously developed abilities to specific knowledge from their undergraduate specialization or major. For each level, general criteria for the ability being performed are established. The criteria give students tangible goals for learning, as well as provide faculty with standards for judging students' abilities.

Nearly 25 percent of Alverno's all-women student body is from an ethnically underrepresented group. Of Alverno's overall enrollment of 2,500, about 1,000 are pursuing degrees on the weekend. Throughout the 1990s, well over half of their entering classes have been the first generation of their families to enter college.

Alverno has meticulously tracked the effects of its assessment program on its alumnae. A longitudinal study has enabled the college to make both empirical and qualitative conclusions that its assessment-based curriculum is effective. Studying 705 graduates in diverse settings five years after graduation, Alverno learned:

- 95 percent of Alverno graduates were employed, compared nationally to the 80 percent of women 34 or younger employed with four or more years of college.
- By their fifth year out of college, 51 percent of alumnae either enrolled in graduate school or continued their education in other ways.
- 88 percent of employed alumnae held positions that require a degree.
- Five years after graduation, 60 percent were in professional positions in their areas of studies; an additional 26 percent held higher level positions.
- 79 percent of Alverno alumnae improved their status compared to their mothers and 66 percent compared to their fathers.

Systematically studying how alumnae performed on the job through interviews designed to demonstrate performance in everyday activities, Alverno found that its performance-based learning and assessment had long-term professional effects:

- 9 out of 10 alumnae are good at recognizing problems and considering alternatives.
- Almost 50 percent demonstrated broader-based organizational thinking and action.
- 80 percent of alumnae integrated interpersonal and intellectual abilities in their performance.
- 9 out of 10 graduates projected self-confidence in descriptions of their performance.

The 800 professional performance examples also yielded the following information linking effective professional performance to Alverno curriculum:

- Alumnae could articulate five years later what they learned in college and gave specific examples of where they learned it.
- Alumnae noted that performance assessment was effective when evaluation of a particular performance was linked to criteria, rather than an appraisal of self-worth or a vague goal.
- Graduates also targeted the diverse ways they learned how to learn, the study skills, strategies and processes of learning they experienced.
- From the group work that was conducted extensively at Alverno, alumnae learned to delegate, to listen and to incorporate the perspectives of others, to share power and to contribute to the group.

Contact: Dr. Marcia Mentkowski, Director of Research and Evaluation, Office of Research and Evaluation, Alverno College, 3401 South 39th Street, Milwaukee, WI 53234-3922; 414-382-6663.

Endnotes for Strategy Nine

[108] "Evaluating Academic Performance," Evergreen State College, p. 14-15.

[109] Statistical tests indicate that there are fewer than five chances in ten thousand that the sample was drawn from a population who skill ratings were normally distributed. When the distribution of scores are tested for significance against the null hypothesis of a normal distribution using a Kolmogorov-Smirnov test, they are all significant beyond the .0005 level.

[110] Paul E. Mott and Steve Hunter, "Greeners at Work: An Assessment," The Evergreen State College Assessment Study Group, Report No. 4, January 1991.

STRATEGY TEN

ASSESS THE KNOWLEDGE AND TEACHING SKILLS OF NEW TEACHERS.

Overview for Strategy Ten

The preparation of public school teachers is one of the fundamental ways that colleges and universities directly influence the quality of public schools and, indirectly, the quality of student preparation for college. Yet the reform of teacher education in California's colleges and universities has lagged behind major K–12 school restructuring efforts. In order to provide a broader context for a discussion of these issues, this section of the Resource Guide provides a review of publications regarding teacher assessment and summaries of several teacher assessment efforts currently in place in several states.

A. Review of Publications Regarding Teacher Assessment

1. A Symposium on Educational Reform

Education Reform: Implications and Responsibilities for K–12 and Higher Education. An Intersegmental Symposium. The Intersegmental Coordinating Committee. Sacramento, CA November 1995.

The proceedings described in this report are based on a symposium sponsored by the Intersegmental Coordinating Committee and the CSU Institute for Education Reform. Focus groups of symposium participants discussed standards, assessment and teacher preparation. Participants agreed on the importance of standards to determine individual student achievement. Equally important, they agreed, was the need to have standards that are easily understood by parents, students, teachers and college faculty. Symposium participants agreed that "The present credentialing system—coursework followed by receipt of a credential—no longer serves the needs of teachers, students, or schools." Furthermore, participants agreed that moving to an individual, candidate-based assessment method would allow the development of flexible standards for teacher education. Participants discussed the importance of making teacher education a campus-wide and district-wide responsibility.

Contacts: (1) Dr. Jack Smart, Senior Consultant, Intersegmental Coordinating Committee, 560 J Street, Suite 30, Sacramento, CA 95814; and (2) Gary Hart, Executive Director, Institute for Education Reform, CSU Sacramento, 6000 J Street, Sacramento, CA 95819.

2. Teacher Preparation Program at CSU

The Teachers Who Teach Our Teachers: Teacher Preparation Programs at the California State University. The California State University Institute for Education Reform. February 1996.

This report focuses on the activities of CSU Schools of Education related to preservice teacher education. Three overarching recommendations include: strengthening K–12 and university partnerships; systematically reviewing and revising CSU policies to encourage better collaboration between education and arts and science faculty; and revising state laws and regulations to provide more school-based experience for teaching candidates and a greater emphasis on candidate assessment. The report also summarizes the authors' observations of the strengths and weaknesses of the education programs in the CSU.

Contacts: Gary Hart, Executive Director, and Susan Burr, Associate Director, CSU Institute for Education Reform, CSU, Sacramento, CA 95819. 916-278-4600.

3. Reforming California's Public Schools

Rebuilding Education in the Golden State: A Plan for California's Schools. Policy Analysis for California Education. April 1995.

In mapping out a comprehensive plan for reforming California's public schools, this report identifies the challenges facing public schooling, including explosive growth in the school-age population, the increasing diversity of the student body, and lagging student achievement. The report offers recommendations about the need to develop measurable education goals for all students, revitalize teacher education, and consider a candidate-based assessment method for determining teacher competence. Specifically the report states that, "California policy makers should give careful consideration to phasing in a system of individual candidate assessment which would measure candidates' subject matter knowledge, their understanding of issues such as how children learn, and their demonstrated ability to teach."

Contacts: Michael Kirst, Gerald Hayward, and Julia Koppich, Directors, PACE, School of Education, 3653 Tolman Hall, UC Berkeley, Berkeley, CA 94720; 510-642-7223.

4. A National Board Certificate for Teachers

Enhancing Professional Teaching Standards for California: A Report of the California Task Force on the National Board for Professional Teaching Standards. California Department of Education, Sacramento. September 1994.

Exploring the implications of introducing the National Board Certificate for highly accomplished and experienced teachers, this report explains the voluntary process of national certifications and the timeline for introducing national certificates in various subject matter areas. It also explores ways local school districts, the state, and professional teacher associations could use the certificate to enhance professional teacher development and competence. The report states that by 1997 the invitation to apply for national certificates in nearly 30 fields will extend to virtually all elementary and secondary teachers in California. Assessments of accomplished and experienced teachers are rigorous and will require preparation and experience. The report concludes that California's successful use of National Board Certification "may require modifications in state law and education policy." The report further states that colleges and universities may consider giving preferences to National Board certified teachers when hiring teacher educators and clinical faculty. In order for the national certification to help improve California's public schools, the report recommends linking current professional development requirements in California to the preparation required to obtain national certification.

Contact: California Department of Education, 721 Capitol Mall, Sacramento, CA 94244.

5. Standards for New Teachers

Model Standards for Beginning Teacher Licensing and Development: A Resource for State Dialogue. Developed by Interstate New Teacher Assessment and Support Consortium. Council of Chief State School Officers. Washington, D.C. September 1992.

In order to solicit feedback on appropriate standards for initial state licensure for individual teacher candidates, the Interstate New Teacher Assessment and Support Consortium developed a resource book for teacher educators, those responsible for licensing teachers at the state level, and professional associations related to teacher education. Major professional associations on teacher education and 17 states, including California, are collaborators on the project. The intent of consortium members is to develop model standards for states to use for the initial teacher licenses that are compatible with the more rigorous and advanced licenses being developed by the National Board for Professional Teaching Standards. Since the release of *Model Standards*, consortium members have agreed to a list of model standards (listed below) to guide states in policy development for teacher education:

- The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students.
- The teacher understands how students differ in their approaches to learning and creates instructional opportunities that support their intellectual, social and personal development.
- The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.
- The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.
- The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.
- The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.
- The teacher plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.
- The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social and physical development of the learner.
- The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.
- The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being.

Contact: Jean Miller, Project Director, Council of Chief State School Officers, One Massachusetts Avenue, NW, Suite 700, Washington, DC 20001; 202-336-7048.

6. College Standards and Teacher Preparation

K12 and Higher Education: Need for Coordination Impacts Both Systems. EdSource Report, March 1996.

This issue of EdSource focuses on two of the major connections between the schools and the colleges and universities: college readiness and standards; and teacher preparation. The report provides a brief summary of college admissions standards and student performance in college placement tests. It concludes with a summary of the major recommendations of statewide and national reports to improve the preparation of teachers. Recommendations are to: (1) strengthen partnerships with public schools; (2) update curricula; (3) improve student teaching; (4) restructure teacher education programs to allow more school-based experience; (5) improve the subject mastery of teachers; (6) develop performance standards and introduce candidate assessment; (7) streamline and strengthen credentialing; and (8) increase internal evaluation and public accountability of teacher preparation programs.

Contacts: Trish Williams, Executive Director, and Anne McCarten-Gibbs, Policy Analyst and Project Writer, EdSource, 525 Middlefield Road, Suite 100, Menlo Park, CA 94025; 415-323-8396.

B. Examples of Teacher Assessment Efforts

1. Kentucky

The State of Kentucky adopted new teacher standards for preparation and certification in June 1993, and revised them in November 1994. The Kentucky Education Professional Standards Board developed the new teacher standards to describe what first-year teachers should know and be able to do in authentic teaching situations. Specifically, the academic content, teaching behaviors, and instructional processes necessary to promote effective student learning are outlined in the standards.

Eight standards were established to ensure that teachers design and implement instruction that develops students' abilities to use basic communication and mathematics skills, apply core concepts and principles, become self-sufficient individuals, become responsible group members, think and solve problems critically and creatively, and connect and integrate experiences and new knowledge. Each general standard describes the category of tasks beginning teachers should be able to perform. General standards are followed by a set of performance criteria on which teacher competency is judged. Performance criteria describe those factors used to judge the quality of teacher performances, scored on a rubric.

The first general standard maintains that teachers should design and plan instruction to develop student abilities in the core ways described above. Performance criteria on which beginning teachers are judged includes the extent to which the teacher's plan includes creative and appropriate use of technology as a tool to enhance student learning, and the extent to which the teacher's plan proposes learning experiences that are developmentally appropriate for learners.

The second new teacher standard maintains that beginning teachers should be able to create and maintain a learning environment conducive to student achievement in the core ways. Examples of performance criteria are the extent to which the teacher motivates, encourages and supports individual and group inquiry, and the extent to which the teacher uses classroom management techniques that foster self-control and self-discipline.

The third standard asserts that teachers should implement and manage instruction that develops the core student abilities. An example of a performance criteria for this standard is the extent to which the teacher links learning with students' prior knowledge, experiences, and family and cultural backgrounds.

The fourth new teacher standard measures the extent to which the teacher assesses and communicates learning results, and the fifth standard measures the extent to which the teacher reflects on and evaluates specific teaching and learning situations. The sixth and seventh standards compel a high level of commitment to professional development, asserting that new teachers need to collaborate with colleagues and regularly engage in a self-evaluation and skill refinement. The eighth standard requires that the new teacher demonstrate a current and sufficient academic knowledge of certified content areas.

While the inclusion of standards in Kentucky's teacher credentialing will be new, the process whereby teacher performance is assessed will remain the same. Teachers are assessed in two places: before they graduate from their teaching credential program, and during their first year of teaching or their "internship year." Before a student graduates from a credential program, he or she must pass an on-demand assessment measuring teaching techniques and methods. Over the next three years, the state will be field-testing a new assessment which will incorporate the standards described above in different academic subject areas.

During the internship year, the new teacher's performance is assessed by portfolios with sample lessons and a committee review process. Once the new teacher standards are fully implemented, the portfolios will include a demonstration of how the lesson plans incorporate the eight learning standards. A new teacher's proficiency in the classroom is also measured during the internship year by a committee comprised of a paid resource teacher, the school's principal, and a representative from a local university sponsoring a teaching credential program. The resource teacher is compensated $1,000 a year to spend time in and out of the classroom, helping the new teacher hone their skills. The committee reviews the new teacher three times during the internship year, supplying comments to the teacher after each review to encourage improvement. At the end of the third review, a final report is written and sent to the Department of Education, which issues the teacher their certification. Approximately 10 to 15 percent of all teachers don't pass this assessment annually and need to repeat their internship year. Teachers may teach without certification but with a Statement of Eligibility for up to four years. When the new teaching standards are fully implemented, the committee will include in its reviews and final report the ability of the teacher to satisfactorily demonstrate integration of the learning standards into their teaching practice. Full implementation is expected by 1998 or 1999.

Contact: Toni Lewis, Office of Teacher Education and Certification, 1826 Capital Plaza Tower, 500 Mero Street, Frankfort, KY 40601; 502-573-4606.

2. Washington State

The Washington Advisory Council for Professional Teaching Standards (WACPTS) is tasked with developing performance-based teacher certification standards. The Washington State Board of Education organized WACPTS to align teacher certification standards with the state's ongoing public school reform and improvement policies. The mission of WACPTS is "to ensure that teachers can demonstrate a positive impact on student learning as the foundation for preparing students to effectively participate in a diverse and democratic society."[111]

The council is composed of 13 members: seven teachers (6 pubic school teachers and one private school teacher, two higher education deans (representing one public and one private college or university), two principals, one superintendent, and one representative of the Washington State School Director's Association. Recommendations for new Professional Certificate and Professional Career Certificate standards, as well as policies for implementation, are due to the Washington State Board of Education by September 1996.

The new certification system WACPTS is tasked with putting in place will entail a Residency Certificate for beginning teachers, a Professional Certificate for teachers who have demonstrated successful teaching as well as specific competencies, and a new Professional Career Certificate which will acknowledge strong teacher commitment to professional development. Their recommendations for the standards to be used for each level of certification are based on several assumptions. Initially, the council assumed that demonstrating a "positive impact on student learning" is highly dependent upon the context in which a teacher serves. The council also assumed that teachers will need to be adept at interpreting and integrating the multiple sources of evidence available in a new learning system that is proficiency-based. These sources include portfolios, statements from parents, peer teachers and/or administrators, and classroom-based evidence of student learning. Technically, the Council assumed that the teacher assessments they recommended will need to be economically and administratively feasible and that the most rigorous assessments will need to be administered at the point of entry to teaching.

At all levels of certification, the emphasis is on the teacher's ability to have a positive impact on student learning. To obtain the first level of certification (the Residency Certificate), the individual must have completed an approved college or university program. The beginning teacher should demonstrate professional growth and assessment literacy skills. The Residency Certificate is valid for five years and may be renewed for two additional years upon application.

For the next level of teacher certification, WACPTS outlined a set of standards and accompanying criteria that teachers must demonstrate. To obtain the Professional Certificate, the teacher needs at least two years of resident teaching experience and must demonstrate: (1) the knowledge and skills for effective teaching which ensure student learning, (2) professional development, and (3) leadership that contributes to the improvement of the school community and the profession. To renew the Professional Certificate, the teacher needs to design a growth plan in which the candidate and the school district must mutually agree on appropriate activities equivalent to the 150 clock-hour requirement.

To obtain a Professional Career Certificate, the teacher would work with a Professional Certificate Coordinator to individualize a program that would include three components: instruction, assistance, and assessment. WACPTS clearly indicated that it did not support the development of state assessment procedures for individual candidates for the Professional Certificate, citing prohibitive costs.

The members of WACPTS used several different resources to shape its recommendations for teaching standards. In addition to learning about the history of certification in Washington and the proposed standards for preservice teacher education, the Council reviewed several influential writings from the field and heard the perspectives of a number of educators involved in related reform efforts of teacher education and certification.[112] Focus groups with first, second and third-year teachers also occurred.

The particular methods and substance of assessment as well as the frequency of examination(s) are currently being considered by the Washington Advisory Council for Professional Teaching Standards. The Advisory Council will submit its recommendations for the Residency Certificate and Professional Certificate to the State Board of Education in November. If the recommendations are accepted, implementation of the new standards and assessments will be on a field-test basis in 1997.

Contact: Dr. Alf Langland, Teacher Education Associate, Washington State Board of Education, Old Capitol Building, PO Box 47206, Olympia, WA 98504-7206; 360-753-3222.

Endnotes for Strategy Ten

[111] "Initial Recommendations to the State Board of Education," Washington Advisory Council for Professional Teaching Standards, January 1996, 2A.

[112] The writings included David Berlinger's paper, "The Novice to Expert Teacher" and Richard J. Stiggins' paper, "Developing a Total Quality Assessment Environment." Some of the experts in education reform were: Charles Mackey of the New York State Education Department, Eugene Campbell of the Colorado Department of Education, and David Myton of the Oregon Teacher Standards and Practices Commission.

STRATEGY ELEVEN

DEREGULATE COLLEGES AND UNIVERSITIES.

STRATEGY 11

Overview for Strategy Eleven

Strategy Eleven suggests that the state establish a systematic process to review all state laws and regulations governing California's system of higher education—and remove those that are of questionable value to the public. As background for this review, this section provides a summary of the California Education Code, prepared by William Pickens.

The California Education Code and Higher Education

By William Pickens

The State of California's relationship to all institutions of higher education, public and private, is defined in the state's constitution, statutes, and regulations. The University of California is defined as a public trust in the constitution, "subject only to such legislative control as may be necessary to insure the security of its funds and compliance with the terms of the endowments of the university. . . . The university shall be entirely independent of all political or sectarian influence" (IX, 9). These provisions, as elaborated in case law as well as tradition, have provided considerable autonomy for the university, especially in terms of its academic programs and its financial structure. Typically, legislation exempts the University of California from many requirements, using the following language: "no provision of this article shall apply to the University of California exempt to the extent that the Regents of the University of California, by resolution, make that provision applicable" (§66744).

Statutes create the California State University (§66600 and §89001) and the California Community Colleges (§70900). These statutes provide for the governance structure, authority, rights, and responsibilities of these segments. Statutory creation, of course, does not provide the autonomy from legislative action which the constitution offers the University of California. As a state institution, CSU also is subject to certain provisions in California's *Government Code*, the *Health and Safety Code*, *Public Contract Code*, and several others (the state university, however, is specifically exempt from several provisions in these codes). Its funds are held by the State Treasury, and its payment warrants are issued by the State Controller. Expenditures and other activities are evaluated by several state agencies and departments (the Department of Finance, the Board of Control, the Legislative Analyst, the Bureau of State Audits, and the Attorney General). Although CSU is outside the control of the Department of Personnel Administration, CSU employees are state employees and the system is required to use a personnel plan consistent with the policies and legislative intent for all state employees.

The community colleges are local entities, subject to many of the provisions common to local districts with elected officials and local taxing authority.

Divisions in the *Education Code* consist of General Provisions, the California Maritime Academy, the Community Colleges, the California State University, the University of California, Private Postsecondary and Higher Education Institutions, and miscellaneous provisions. Within each division for the public institutions appears, in greater or lesser detail, an enormous range of information and requirements, ranging from the global (defining terms of office for governing board members) to the very specific (a court's authority to award attorneys' fees during a student grievance).

In general, most provisions of the *Education Code* can be classified as definitional, authorizing, or requiring. Those provisions with resource expenditure requirements are most often in the "requiring" classification. Table 11.1 lists some general categories of statutes in the *Education Code* and some examples from within that category.

TABLE 11.1

California's Education Code and Higher Education

General Ed. Code Category	Examples	Ed. Code Section
Policy Setting Framework	Definition of governing board authority	§66600 & §72000
Definitions of Constituencies and Rights Granted	Constituencies include employees, students, contractors, and the public.	
	Violation of parking of vehicles "shall not be cause for removal, suspension, or expulsion of a student from a community college."	§76036
	CCC faculty teaching credit & noncredit contract education shall be compensated in same manner as those in regular, non-contract education program.	§78022
	Every CCC classified employee employed five days a week shall be entitled to 12 days leave of absence for illness or injury.	§88191
	Every CCC district shall grant to regular classified employee 0.03846 hours of vacation credit for each hour of paid service.	§88197
	If a CCC district does not designate September 9 known as "Admission Day" as a paid holiday, the district shall provide a substitute holiday.	§88205.5
	Right of CSU librarians to a 10 or 12 month contract.	§89518
Reporting Requirements	Annual statistical reports on transfer patterns required from governing boards.	§66742
	The CSU internal audit staff shall perform audits at least once every five years of activities pursuant to [a list of sections] in the *Education Code, Government Code* and *Public Contract Code*.	§89045
	The University of California shall make an annual report concerning salaries, wages, hours of work, conditions of work and other matters relating to personnel.	§92610
	Each public segment shall report on or before each November 15, a report which contains [a list of 20 items follows, which collectively is known as the Higher Education Accountability Program).	§99182
Financial Arrangements	The California State University Trust Fund is hereby created in the State Treasury [definitions and reporting requirements follow].	§89722
	Any sum of money appropriated to the Regents of the University of California, other than money appropriated in the State Budget act, may be withdrawn at any time in its entirety from the State Treasury, at the direction of the Regents.	§02100

TABLE 11.1 *(continued)*

California's Education Code and Higher Education

General Ed. Code Category	***Examples***	***Ed. Code Section***
Financial Arrangements (continued)	An admission fee and rate of tuition fixed by the UC Board of Regents shall be required of each student, except as otherwise provided.	§92010
	The Regents and the Trustees shall establish policies for the expenditure of student fee revenues which are consistent with long-term student fee policies established in section 66152.	§66154
Procedures Required	CCC must apply same contract participation goals for minority and women owned businesses as required of CSU due to Sec. 10115 of the *Public Contract Code*.	§71028
	The President of each CSU campus shall provide for the annual cleaning, sterilizing and necessary repair of football equipment. . . . Any contract for equipment repair shall specifically describe the materials to be used.	§90510
Calendar	The community colleges shall close on [a list of holidays follows].	§79020

How much of the *Education Code* is woefully archaic, unnecessarily burdensome, or of wasteful expense to higher education? This could only be answered through a line-by-line examination that evaluates the real impact of the truly operative provisions of law, as distinct from those merely definitional or authorizing. Even then considerable disagreement will ensue about the public good in such provisions.

Nevertheless, a review of the state codes relevant to higher education indicates that several provisions, notably those dealing with personnel, those granting special benefits to various groups, and those involving business transactions, do impose burdens of questionable value to the public but at considerable cost to the institutions.

THE CALIFORNIA HIGHER EDUCATION POLICY CENTER

The California Higher Education Policy Center is a nonprofit, independent, nonpartisan organization created to stimulate public discussion and debate concerning the purposes, goals and organization of higher education in California.

Single copies of *Shared Responsibility* and this *Supplement to Shared Responsibility* are available from The California Higher Education Policy Center, 160 West Santa Clara Street, Suite 704, San Jose, California 95113. For an immediate response, please FAX requests to (408) 287-6709. Ask for Reports No. 96-3 and 96-4.

The Center grants permission to copy and distribute this publication, with acknowledgment of The California Higher Education Policy Center.

Published by The Center

CENTER REPORTS

93-1 PUBLIC POLICY BY ANECDOTE: The Case of Community College Fees. By William H. Trombley. April 1993.

93-2 THE CALIFORNIA HIGHER EDUCATION POLICY VACUUM: The Example of Student Fees. By Patrick M. Callan. April 1993.

93-3 THE PRESS AND CALIFORNIA HIGHER EDUCATION. By William Chance. May 1993.

93-4 BY DESIGN OR DEFAULT? By Patrick M. Callan and Joni E. Finney. June 1993.

93-5 ON THE BRINK: The Impact of Budget Cuts on California's Public Universities. By Jack McCurdy and William Trombley. August 1993.

93-6 THE CLOSING GATEWAY: Californians Consider Their Higher Education System. By John Immerwahr and Steve Farkas. September 1993.

94-1 TIME FOR DECISION: California's Legacy and the Future of Higher Education. March 1994.

94-4 BROKEN PROMISES: The Impact of Budget Cuts and Fee Increases on the California Community Colleges. By Jack McCurdy. October 1994.

95-1 FINANCING THE PLAN: California's Master Plan for Higher Education, 1960-1994. By William Pickens. April 1995.

95-2 A STATE OF EMERGENCY? California's Crisis in Higher Education. By David W. Breneman. February 1995.

95-3 PRESERVING THE LEGACY: A Conversation with California Leaders. By John Immerwahr with Jill Boese. March 1995.

95-4 TRENDS IN STUDENT AID: California. By Lawrence E. Gladieux and Jacqueline E. King. April 1995.

96-3 SHARED RESPONSIBILITY: Strategies for Quality and Opportunity in California Higher Education. June 1996.

96-4 SUPPLEMENT TO SHARED RESPONSIBILITY: A Resource Guide. June 1996.

OCCASIONAL PAPERS

94-2 A MODEST PROPOSAL . . . for Saving University Research from the Budget Butcher. By Jack Miles. September 1994.

94-3 PRESERVING THE MASTER PLAN: What is to be Done in a New Epoch of More Limited Growth of Resources? By Clark Kerr. October 1994.

TECHNICAL REPORTS

93-1 THE PAST AS PROLOGUE: Examining the Consequences of Business as Usual. By Dennis P. Jones, Ronald G. Parker and Peter T. Ewell. June 1993.

95-5 FINANCING THE CALIFORNIA MASTER PLAN: A Data Base of Public Finance for Higher Education in California, 1958 to 1994. By William Pickens. April 1995.

95-6 TIDAL WAVE II: An Evaluation of Enrollment Projections for California Higher Education. By David W. Breneman, Leobardo F. Estrada and Gerald C. Hayward. September 1995.

96-1 FOCUS ON STUDENTS: The Student Composition of California Higher Education. By William Doyle. January 1996.

96-2 HIGHER EDUCATION FINANCE: An Annotated Bibliography. By William Doyle. February 1996.

160 West Santa Clara Street, Suite 704, San Jose, California 95113